

Bob Cooper's

SEPTEMBER 15 1997

SatFACTS

MONTHLY



Reporting on "The World" of satellite television in the Pacific and Asia

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Blueprint for
Murdoch's Future**

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Racing Channel
Service**

**New Birds,
New Routines
(180E Update)**

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- ✓ Cable TV Connection

Vol. 4 ♦ No. 37

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D9223 USER? Read page 1 FIRST!

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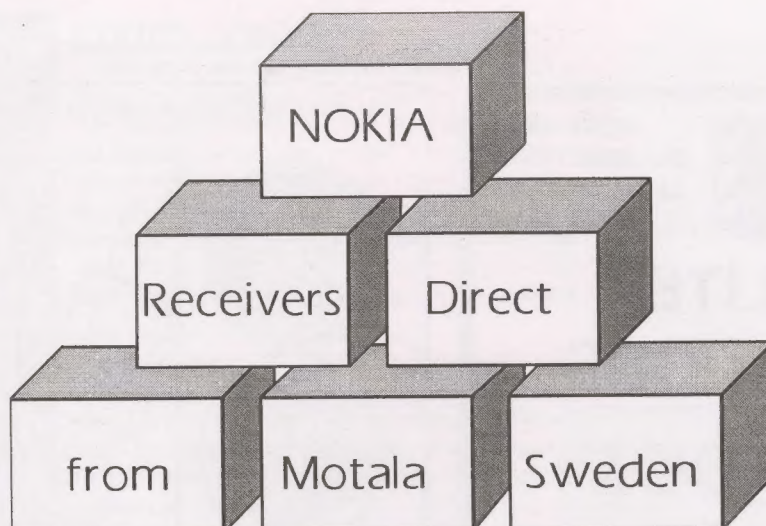
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NEWLY
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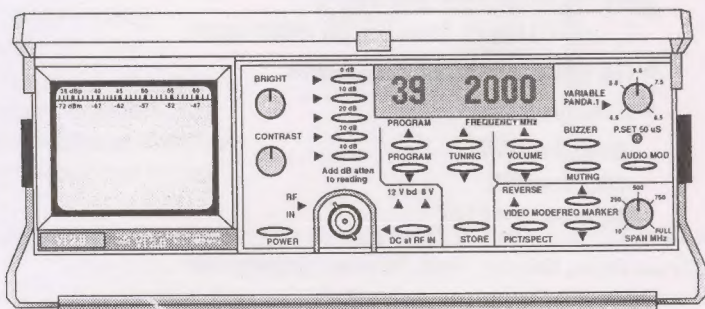
SATELLITE INSTALLATIONS

ME SAT.COM
<http://www.mlesat.com>

The difference between excellent satellite TV reception and poor signal quality often boils down to one thing: the installation. A correct installation performed by a professional installer can pull out that last fraction of a decibel in signal strength, making the difference between problematic TV reception and a perfect TV picture. Few technicians, however, have gained a thorough knowledge of this subject and related information resources have heretofore been limited in scope and not up to date with the latest technology.

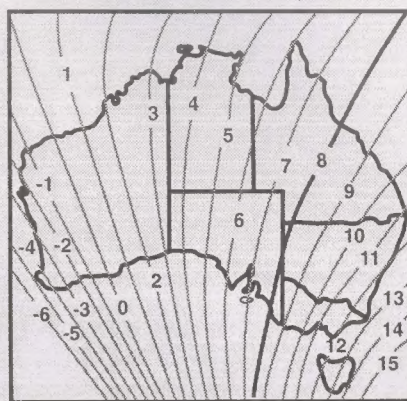
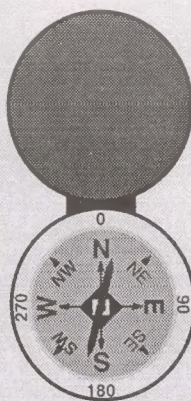
Released in August of 1997, the latest in the line of successful *Satellite Series* videotapes from MLE/Shelburne Films is a one-hour graphic intensive videotape written and presented by Mark Long, author of *The World of Satellite TV* and founding publisher of *The World Satellite Almanac*. **Satellite Installations**—which covers the technical details which every satellite professional needs to know, including basic digital DTH system parameters and installation tips—is part of a new *Satellite Installer Certification Course* expressly designed for members of the **SPACE Pacific** trade association.

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This publication is dedicated to the premise that as we enter the 21st century, ancient 20th century notions concerning borders and boundaries no longer define a person's horizon. In the air, all around you, are microwave signals carrying messages of entertainment, information and education.

These messages are available to anyone willing to install the appropriate receiving equipment and, where applicable, pay a monthly or annual fee to receive the content of these messages in the privacy of their own home. Welcome to the 21st century - a world without borders, a world without boundaries.

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COOP'S COMMENT

Many people who have shelled out upwards of \$2,500 in local currency to own one or more Scientific-Atlanta D9223 IRDs feel, understandably, as if they have paid for it twice: The first time with a cheque or bank transfer, the second time with the irritation that comes from owning this receiver. My cable company owns six of these boat anchors; I've had to return three for technical problems including one that came out of the box from JET-TV just ten days ago with a bad power supply hum that was modulating the video and raising heck with the audio.

I hope the rest of the D9223 ownership world has done better than the 50% failure rate I've experienced over time.

There is a letter in front of me written by Elizabeth Dickens, Senior Director of Program Services for PanAmSat, which makes me very angry. This letter was written August 29th, came to me from an Asian reader who had it forwarded to her office by a prominent programmer using PanAmSat to distribute their network. The letter says, in capsule form, that PanAmSat and Scientific-Atlanta are presently involved in a "company wide software enhancement to Scientific-Atlanta PowerVu decoders." I had just gone through this as a Discovery cable affiliate, coincidentally on August 29th. An engineer from Discovery USA was in the Singapore office on the telephone while I stood in front of the Discovery D9223 in my cable headend and he led me step by step through a complex series of button pushing manoeuvres which Discovery promised would, "bring my D9223 up to the latest software levels." As I was following the telephone instructions and confirming each of more than a dozen steps during the 15 minute exercise, I asked him what would happen if a receiver in the Discovery network was not upgraded. His response was chilling: "Shortly it would quit working, and might require going back to SA to get right again."

After three power supply failures, I can identify with a D9223 that stops working. A few days later a responsible reader in Asia called to say a fax was coming to my desk in a matter of minutes - a fax that warned of a world-wide upgrade of all D9223 units. The Elizabeth Dickens letter soon appeared. I quote from the last paragraph on page one and the underlining and bold facing is exactly as it appears in the original letter:

"It is of the utmost importance to have all DVB decoders switched to a Network ID setting of '1'. Once PanAmSat and other Customer owned DVB digital platforms create multiple Network IDs, any decoders remaining in the old default setting of '0' will cease to operate and be completely unrecoverable after 27 hours. These IRDs will NO LONGER be functional."

What does this mean? SA has come out with new software. What it does for you, the owner of a D9223, is not important. What is important is that they are telling you (and me) that unless we follow their instructions, and allow their software download to "update" existing software, our receivers will quit working. Moreover, 27 hours after they stop working, they will be "unrecoverable." My dictionary tells me unrecoverable means I will "not be able to regain possession of, control of or use of" the D9223.

I paid my money for my six D9223's. I pay subscription fees for my cable services. Now - what allows SA or PanAmSat or the two of them in partnership to come along and send new software to my receiver if I don't want it (Robin Colquhoun has a long list of reasons why you might not want an update)? And if for some reason my receiver does not get the new software, what gives them the right to make my receiver "unrecoverable?" Is there a consumer rights class action legal suit here?

As this issue of SatFACTS goes to press all attempts I and others have made to get answers to our concerns about this software download project at SA and PanAmSat have gone unanswered. If, after we go to press, some answers are forthcoming, they will be posted on two satellite related web sites (<http://www.baysat.co.nz/baysat>, and, <http://www.avcomm.com.au>). You are encouraged to defend your ownership rights by telephoning Homestead, Florida and expressing your concerns to PanAmSat's Manager of CDV systems, Romi Salerno (++1-305-245-1919 or ++1-305-247-7055). Be quick; Elizabeth Dickens' letter warns all upgrades will be completed by October 15th. If you do nothing? Go back and reread the last sentence in Elizabeth's quotation: "These IRDs will NO LONGER be functional."

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-ON THE COVER-

This (SA) 9 metre dish installed at SKY Networks in Auckland provides the uplink signal to Optus B1 for Sky Sport and Sky Orange. Look carefully - notice something a bit unusual with the splash plate system at the feed point centre?



September 15, 1997



LETTERS

Anybody Know SatTel?

"We are searching for a handbook or circuit diagram for English built SatTel receiver type PRK6. Single rack unit height, twin single channel receivers fitted. Can anyone help?"

Ross Weir, Technician, Christchurch Polytechnic,
PO Box 22-095, Christchurch, New Zealand

Perhaps an European reader can assist?

Over The Top?

"Commenting on the SatFACTS report August 1996 comparing the SA D9223, Hyundai HSS-100C and Nokia 9500S. Can we really expect Mr. and Mrs Joe Average Consumer to REALLY go through all of those specialised steps just to change viewing channels? Robin Colquhoun has done a superb job of dissecting advantages and disadvantages of each unit but it all leaves me pondering what ever happened to the promise we all heard when digital came along: 'Point, press and view'?"

Bob Kelleher, Antares Electronics Pty Ltd.
Strathpine, Qld, Australia

Our precise point. Enthusiasts get their kicks out of pushing buttons and exploring; consumers get theirs from sitting down and watching a suitable TV programme. Somehow the receiver folks have confused the line between enthusiast and viewer. Official

"I made contact with GWN (Perth) today and they confirm PowerVu has definitely been selected for the B-MAC changeover. An authorisation system will be in place much like the current B-MAC and Scientific-Atlanta will retain their total control!"

Trevor Sorenson, Tambellup Electrical, WA

We don't believe the final chapter in the B-MAC conversion to some form and format of MPEG-2 is yet written. As it sorts, we'll keep readers advised. Not So Official

"Thank you for your continued support of SPACE TV DTH services. At this stage (25 August), SPACE TV services are not yet on offer because tests of the encryption system are on-going. I also need to clarify that the undersigned is not SPACE TV's Australia agent, yet. As you have reported, they have some rigid conditions for anyone interested in becoming their agent, and my company has not agreed to all of the conditions and has not sealed the distributorship. Negotiations are ongoing and I am optimistic agreement will be reached soon."

Ming Leu, Network Satellite Services Pty Ltd
Harris Park, NSW (tel (61-2)9687-9903

We can also report the final status of Exxtasy adult service carriage within the SPACE TV Systems bouquet is not (early September) "sealed" either. Our reading is the delivery of suitable IRDs for this service has been delayed and until that sorts out everything is in a state of "limbo."

PROGRAMMER PROGRAMMING PROMOTION

UPDATE

SEPTEMBER 15, 1997

No instructions? Why, after scaring the crap out of you with our report on page 1, don't we share with you the "instructions" that PanAmSat has issued to ensure your D9223 does not end up being "unrecoverable?" That's the irony of this procedure: In a two page letter where you are told of the dire consequences of not following their instructions, they gave no instructions! NOW you know why we are angry, and why SA and PanAmSat's failures to respond to our urgent requests for more information are so unnerving.

1701 at 180E (finally!). Long wait, was it worth the anticipation of finally shucking badly inclined I511? A first level report on page 15, detail in October.

German publication TeleSatellit claims BSKyB has rethought policy that new IRDs will not do FTA; may authorise FTA through smart card. Meaning? If you subscribe to their pay services, card will also unlock FTA as well - like a bonus (see p. 8, here).

ATVI has been taken over by Australian 7 network. "7" assumed debt of A\$7.3 million in ATVI losses, paid (original) owner ABC A\$3m and promises to keep service operating "at least 4-1/2 years." ATVI lost money, faced political pressures to make money or shut down. ATVI service on Palapa C2 averages 16 hours daily, will gradually see expansion and addition of "7 Australia" programming and will continue to uplink from Darwin.

Status of UIH cable/SMATV programming package. Now reduced in concept from 18 to 5 English language services - which five still undecided - plus hopeful Spice International (R rated adult) via C-band Intelsat 802 from 174E. When? "Third or fourth quarter 1997."

Pay per view events. Each month from 5 to 15 pay per view events are transported across the Pacific for optional offering by cable operators and DTH programmers. One would suppose these events are transported encrypted and probably in MPEG form. The question becomes by what transport link and in what format. Here's an exercise for readers. On Saturday September 27th, EVENT TV from the MGM Grand in Las Vegas will supply Bette Midler in Concert at 10.30UTC/20.30AEST/22.30NZT. If you happen to be dialling around on that date, see if you can get a "whiff" of the bird, transponder and other parameters just as an educational challenge. If in digital, it will probably be identified as "EVENT TV." Reports to SatFACTS.

MegaTV (C2) back in the clear after dropping several programming channels (HBO et al) for a few weeks in August, toying with soft encryption (CA module data stream). Future of this service? It certainly won't remain FTA forever!

FTA? What *does* it mean??? Australian ABC popped up on PAS-2 Telstra Bendigo (Victoria) uplink September 1 as third video (plus 2 audio) service; inspection of PowerVu menu revealed interesting addition to newly added channel 5 listing: "FTA." Could it be? Does it mean?

"The British Are Coming." Here are some changes scheduled to happen as Murdoch and Foxtel assume control of Galaxy on or before November 1: Galaxy, the satellite service, will become Foxtel - the satellite service. A third transponder on B3 will be put into operation and the Foxtel satellite service expanded with new channels. And, in a major cutting back of staff, Galaxy offices will close or be downsized with independent dish installation firms encouraged to sell Galaxy DTH systems as well as do the installations, ending the reliance on contract installers.

How slow is slow? First week in September, SKY (NZ) reportedly had only 50 new DTH installs - nation-wide.

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Another Use for Sky Receivers

"I recently resurrected my old Post Office 10 foot microwave dish. Aimed at C2, equipped with an older 80 degree LNB and a home made feedhorn from an ancient Coop publication, I have P4/P5 pictures from Palapa C2. Unfortunately, using a Sky Uniden receiver the audio is noisy. Is this because there is too much audio bandwidth? And what does the C/Ku button on the remote control do?"

John Kint, Hamilton, NZ

A 10 footer on C2 in NZ should produce at least P4 images on horizontals TPI, GMA, TVRI and CFI at a minimum. Noisy audio is indeed a bandwidth problem and somehow the receiver needs to tune a smaller segment of the audio subcarrier spectrum. Is there a quick software fix for this receiver for audio bandwidth? Someone reading this will certainly advise! The C/Ku button inverts the baseband video polarity to compensate for the different placement of the LNB LO at C band (LO is above C-band) and Ku-band (where LO is below the band).

Chaparral?

"Can you explain to me what has happened to Chaparral? I have just been told the Sidekick line of LNBs are no longer being manufactured and no replacement or updated model has been announced. I like these units and worry that something has happened to the company."

S.R. Huntsworth, Suva, Fiji

Indeed "something" has happened. A devastating (for Chaparral) series of lawsuits, then their California facility cut back the staff by (some reports) 90% and now no more Sidekicks. It doesn't look good.

Francophile Decoders

"A number of Francophiles and soccer fans in Eastern Australia and NZ would like access to a full range of French programming; i.e., RFO + CFI + European Bouquet + Canal Plus (which has great sport and films). Three questions which our dealers seem unable to answer: (1) How many decoders are required, and, (2) Do 'pirate' Canal-Plus decoders available out here, and, (3) Are SECAM to PAL decoders usable here? A dealer in Brisbane told me RFO on 180 is not received there; surely this is wrong?"

Dr. David Furrows, Northcote, Auckland, NZ

CFI (C2) is available with a dish as small as 1.8m in most of NZ, Australia. European Bouquet requires a dish from 1.8m (best case in Australia) to 3.7m (worst case in NZ) but also provides MCM Music as well as TV5. RFO was difficult until August 5th when 701 replaced 511 at 180E.

However, RFO could be transferred to an east-only beam and that would lose it for everyone in NZ and Australia. Canal + is in fact on Intelsat being fed to New Caledonia but nobody has found the correct receiver/card yet to receive it. Give the industry another 6-12 months and we believe there will be a dozen or more French language programme channels available to Australia and NZ viewers. It's just a matter of money and time.

Only Canal + requires a decoder/card, rest are FTA analogue or MPEG. SECAM to PAL standards converters widely available, typically NZ\$550 or less.

HARDWARE EQUIPMENT PARTS

UPDATE

SEPTEMBER 15, 1997

SPACE TV Systems XSAT model CD.TV200 (from "Xcom") digital IRD is now being hawked in grey market for US\$700 without CA, US\$1,100 with CA equipment. Source(s)? Hey - let us all remember that SPACE is a Taiwanese based broadcaster and no culture has adopted the grey-market-mentality better than the Taiwanese!

AsiaStar 2, L-band CD quality 30 programme channel audio-only broadcast satellite heading for 105E late in 1998 is designed to reach ground-based receivers employing tiny set-top/car-top "patch" antennas with nominal gain of under 6dB. South of the equator is not in patch-antenna footprint but with just a modest (1m) dish this service could be a hummer clear to the horizon (east of New Zealand). L-band? In 1.5 GHz region where carefully built yagi design antennas will also work very well.

Sleeper. Singapore based group has 14 transponder C, 16 transponder Ku DTH bird heading for 88E in first quarter of 1998. Bird is called "ST-1" and for some reason backers are keeping very low profile in a field that has big time hype. One source says project is bogged down and may not go until 1999.

Indostar/Cakrawarta scheduled for 106E launch October 10 via Ariane will when checked out take over Palapa C2 feeds (3500, 3580 Hz; possibly 3460 if it begins service before transfer). That means no-more Indovision on C2 and *every* DTH system equipped for Indovision must *replace* feed and LNB with S-band equipment. Odds are C2 will not shut down until significant part of Indovision universe has made equipment changes. S-band footprint for Indostar is closely held "secret" but Skandia Electronics (Melbourne) is betting some signal sneaks south into Australia and is ordering S-band LNBs and feeds to be ready.

High power, small dish C-band satellite project by Space Systems/Loral is called M2A (as in M-Squared-Asia). Satellite is "monster" that will create 11,000 watts of solar power (nearly twice anything now up there), be launched by heavy lift Russian Proton rocket in 1998. How powerful? C-band service at boresight down to 0.5m (18"! dishes, a dish size previously only practical at Ku-band. Where will they hang this earth scorcher? Classified information - but how would you like to be operating a normal-power C-band bird from an adjacent orbital spot! (SS/L says the signal will be so potent that at the horizon edge of beam pattern, *fringe* area reception will require a 2.4m dish. Now that's a REAL fringe area antenna!)

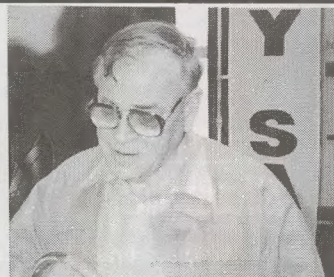
DMV (formerly NTL), News Digital Systems and News Datacom - all Murdoch companies - now have a common corporate structure and (new) name: NDS Limited.

Glyn Bostick, age 74, died at his home in DeWitt, NY August 25th. A WW2 Marine Corps veteran, graduate of Yale in 1947 with an electrical engineering degree,

IN MEMORY

he worked for many prominent early aero space firms until he and wife Emily founded an RF filter company in 1967. Glyn attended and spoke at the first SPRSCS in 1995, again in 1996 and sent son Daniel to speak at SPRSCS'97; Glyn planned to speak at SPRSCS '98.

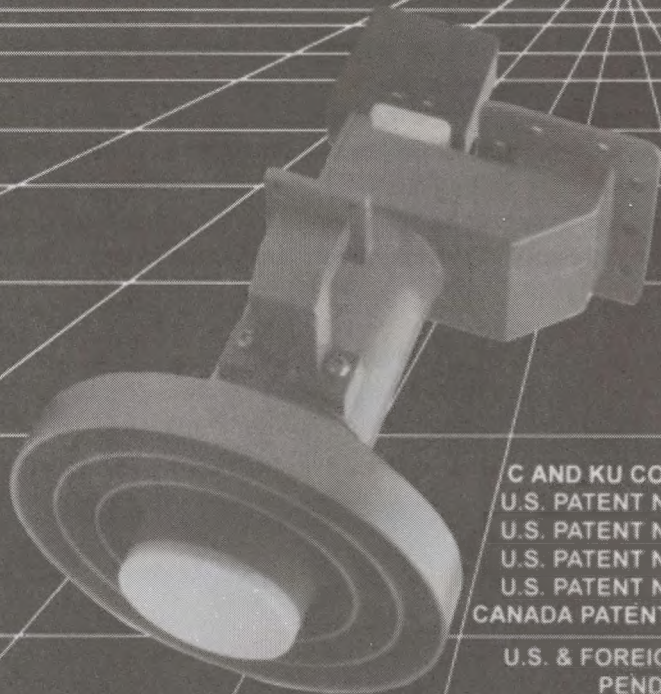
Communications & Energy Corp (CEC) has been a supporter of and participant in the development of the satellite and cable industries in the Pacific and Asia. Glyn and Emily's family approach to their product and the industries they have served has been legendary for several decades. We will miss Glyn very much but are certain his memory will live on.



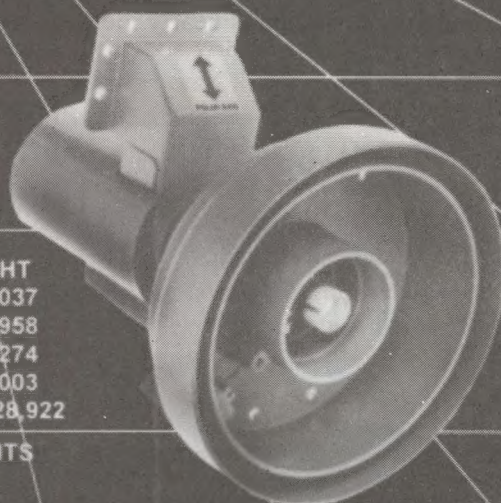
Glyn Bostick at SPRSCS



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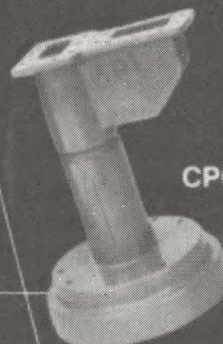
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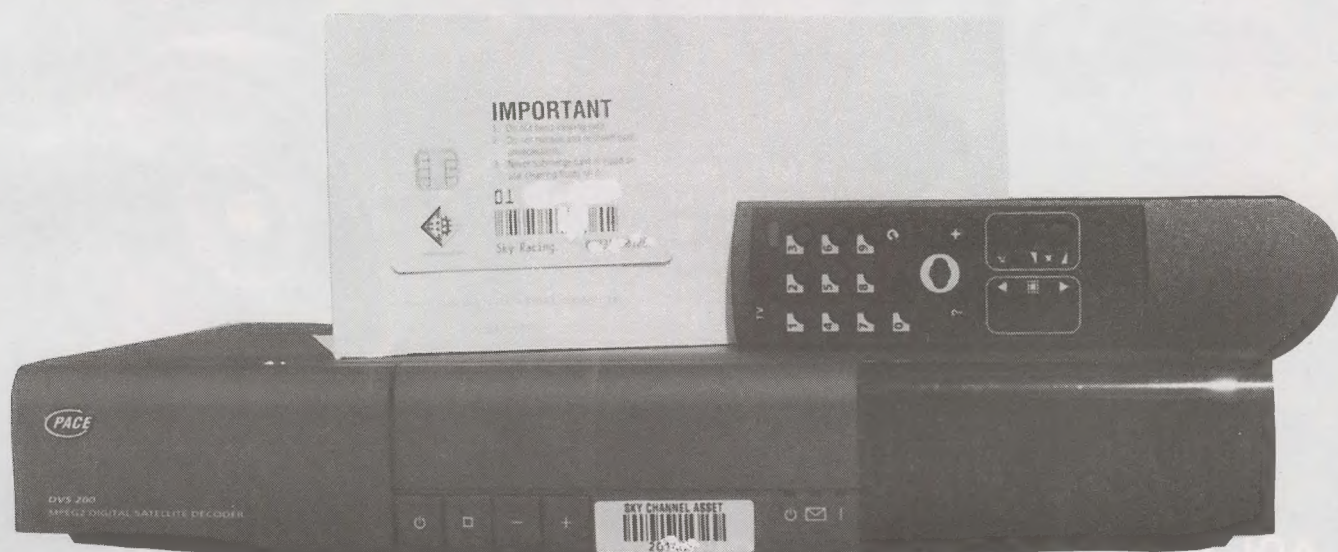
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PACE DVS-211-G SERIES: FIRST LOOK AT A "BUILDING BLOCK"

Here is the concept. Rupert Murdoch interests in their many, varied formats will all be using the same basic (NDS) encryption routines. That means BSkY (Europe), ISkyB (India), JSkyB (Japan), STAR TV and a host of others begin with the same MPEG-2 encryption platform, add to it their own version of the Common Scrambling Algorithm (CSA) and then individually add the third and final layer of data - an addressing algorithm unique to their own service (bouquet). If the MPEG + encryption routine is nearly identical for each,

uplink control centre. A similar but less versatile feature was included in the Pace DGT-400 (Irdeto CA) in use by Australis/Galaxy/(Foxtel).

The second most important feature is the ability of the receiver to act as an intermediary between the viewer (subscriber) and the pay TV bouquet service operator. Increasingly, pay TV operators (both cable and DTH) are realising that considerable amounts of money are to be made by selling per-event service. Sporting events, musical concerts have proven to be big money-spinners for operators (2). Versions of the 200 series box have



RECEIVER in your future - PACE DVS 200 series with IR (remote) and smart card for bouquet access

should not the *receiver* also be equally identical?

The Pace model DVS-211 (1) was originally developed with the assistance of NTL/DVM as a consumer level receiver for the Murdoch services world-wide. Test versions of the unit were delivered in small quantities (under 50 units) to STAR TV Asia personnel in mid-1996. The most important feature of the 200 series is its ability to receive software upgrades "over the air" (through satellite transmission paths). Here, the plan is that as new software routines are created for individual bouquets, the service operator can address individual units, the entire universe of receivers or any number in between those extremes from the

the in-built ability to interface the subscriber to the pay TV operator's authorisation centre through a telephone modem (interconnection to the telephone line in the home). Using software provided by the DTH or cable TV service operator, a subscriber selects a future event of interest and using "point-select-click" routines with the on-screen menu, "tells" the IRD that a to-happen pay-TV event has been selected. This becomes a "buy" (purchase) of that event by the IRD. Once the instructions have been given to the IRD, it automatically "dials" the pay-TV operator and orders the event while

1/ There are already several slightly different model numbers available but all share the same electronic hardware circuits adjusted only to reflect later version processing chips.

2/ Recent-current pay-TV events offered in Australia have included: World Championship Wrestling (July 14, August 10, September 15); Concerts (David Bowie-July 26, Night at the Opera-August 23, Bette Midler- September 27); boxing (WBC light-heavyweight- August 8, De La Hoya v. Comacho- September 14).



Rear deck of 200 series IRDs currently being supplied to Indovision, Sky (Racing) Australia, Star TV (Asia)

passing to the operator the IRD's authorisation number and the viewer's credit card (or billing) instruction. All the viewer must do is use the on screen guide and remote to select the programming; *the IRD does the rest!*

This automatic pay-per-view ordering feature will only be available on 200 series receivers going into regions of the world where the existing telephone networks can support such an interconnection; ruling out much of Asia at this time. However, Australia and New Zealand with their quality telephone networks are candidates and Italy's Telepiu was the first Pace/Murdoch customer to take delivery of this version.

The key to accessing individual bouquets or packages is the smart card. This Murdoch/NDS creation is a 'missing link'. In the conditional access encryption routine, the receiver has been preloaded with instructions that tell it which channels to process and which to ignore. In most situations, the receiver will

ignore *all* programme channels until a properly authorised smart card is inserted. The card's imbedded circuitry completes the decryption link by providing instructions to the receiver proper. Individual cards are programmed by the pay TV operator to tell the IRD which programming channels are authorised for viewing.

What this says is *one model* of receiver suitable for all of Asia can now be produced and those receivers going into Indovision regions will be told by their *smart card* which channels to process, those going into India will be told which ISkyB channels can be viewed and so on throughout the entire world region. Does this mean you can take a receiver sold into India, marry it to a smart card intended for Indovision but located in Australia and gain access to the Indovision service package? In theory, yes. In practice, we are not so sure this is the case.

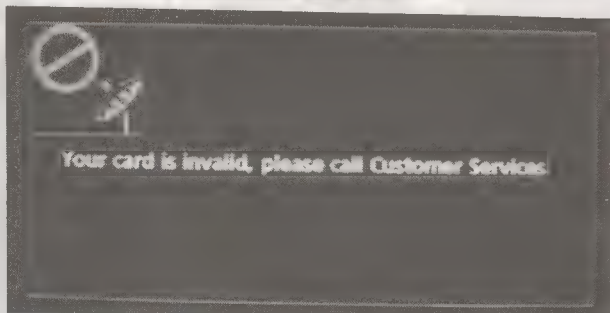
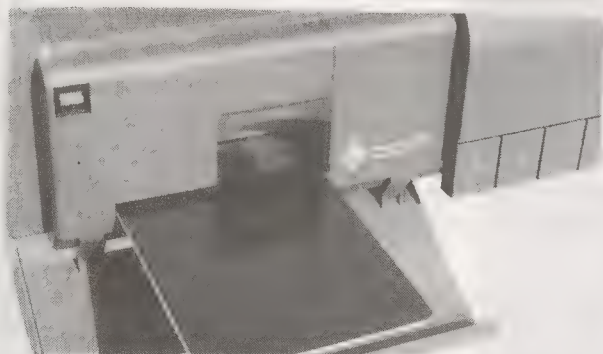
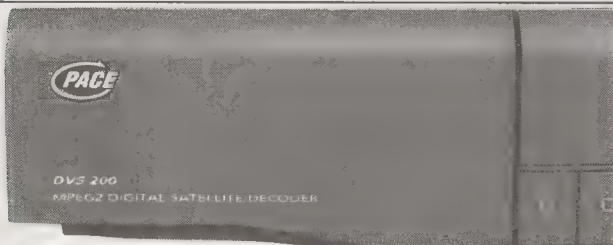
The DVS-200 series receiver now being distributed throughout Asia and the Pacific (3) comes preloaded with factory inserted reception parameters for a number of Star, Sky and Indovision services (see table, next page). It is also equipped for field loading of up to 8 additional programming bouquets. We queried a source at Pace as to why the receivers would be ready to receive the Star + Indovision + Sky services as they left the factory, anticipating that you only needed the appropriate smart card to make the receiver play for each bouquet. The response we got was:

"When a particular platform uses its own smart card, then internally the box is different software-wise, which means the box is platform specific. But hardware wise, the boxes are all the same except for the RF modulators."

Does that mean a box for the Star TV platform will not function on the Indovision platform? The response:

"All of the (data) entry points are the same between Indovision IRD software and the Star IRD software since the software inside is the same except for the logos in the menus. By keeping as much of the software the same as possible, we reduce the opportunity for introducing 'bugs' into the software."

So the software is the same, and only a smart card change is required?



SMART CARD is key to accessing individual services or bouquets; card inserts into slot behind door on left hand front IRD face and if the card is incorrect or invalid, the on screen display advises you.

3/ In the Pacific, legitimate (authorised) 200 series IRDs are only available for the Australian Sky Racing Channel service.

WHAT SF FOUND PRELOADED IN DVS-200 UNITS WE REVIEWED

Service	Loaded Frequency	Loaded Polarity	Loaded Msym	Loaded FEC	Loaded Format
Star (TV) 4	3,900	Vertical	28(.100)	1/2	QPSK
Star (TV) 3 (a)	3,760	Horizontal	28(.100)	1/2	QPSK
Star (TV) 2 (b)	3,740	Vertical	28(.100)	1/2	QPSK
Star (TV) 1	3,700	Vertical	28(.100)	1/2	QPSK
Indovision 3	3,580	Horizontal	26(.850)	7/8	QPSK
Indovision 2	3,500	Horizontal	26(.850)	7/8	QPSK
Indovision 1 (c)	3,460	Horizontal	26(.850)	7/8	QPSK
Sky TV (Racing)	4,015	Vertical	18(.100)	1/2	QPSK
Satlites A - H	No preload (00.000)	no preload (Hz default)	no preload (00.000)	default 1/2	default BPSK

(a), (c) - These transponders not presently in use; (b) transponder has been in intermittent use by Star TV

"Not necessarily. It turns out to be more practical to load all of the software (for both services) into the box at the time of manufacture than to attempt to be service-specific and rely upon field control. There is actually more work to removing software than to leave it in, even if you don't 'break' something in the process of removing the unwanted software. It also has the advantage of removing the need for Star personnel in Asia to make certain they have the one specific box for the desired service - either box will work with either service."

Translation? A sticky question and nobody really wants to answer it "on-the-record."

As reported in SF#36 (p. 4), a Murdoch spokesperson has sought to clarify the issue of Murdoch-service-specific IRDs being capable of accessing FTA (free to air) transmissions. Their statement was:

"Sky is not in the business of supplying access to other broadcasters, even free to air services."

Naturally we were curious what would happen if we entered the parameters for a FTA MPEG service into the receiver. Access to the installer menu is quite straight forward (see p. 10, here) using the remote control and some buttons on the front of the unit. With nothing loaded in memory positions "Satellite A - H," we had plenty of spare room to play. The receiver had no difficulty accepting the European Bouquet (EBB)

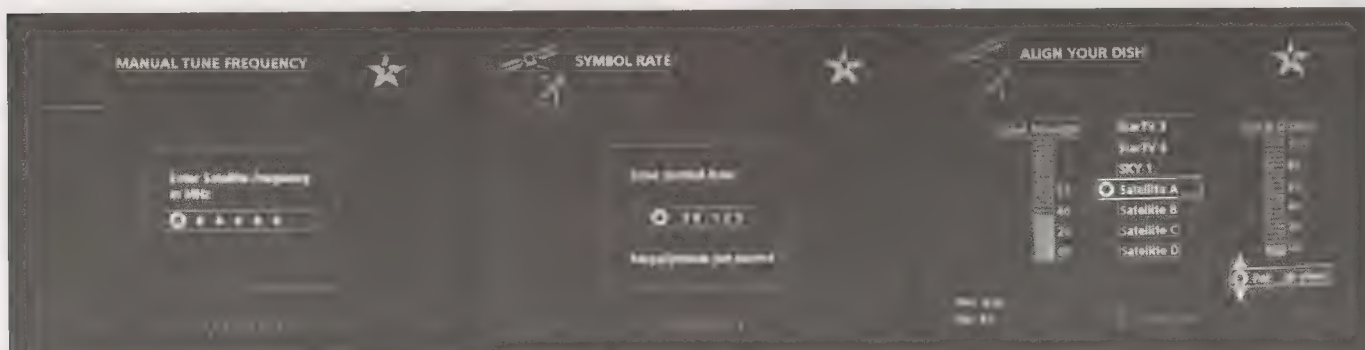
parameters (below) and quickly locked onto the services (right hand photo). Alas, in the menu load position it would not detail the services present and as promised we could not view the EBB services.

Just how securely locked out might the FTA services be? We went back to Pace and were told:

"The box is deliberately prevented from receiving non-scrambled signals. As you have found, it locks but does nothing more. Actually it can work free to air if instructed to do so but it is very unlikely any of the (Murdoch) service providers will transmit these instructions to the boxes." Our respondent then went on to tell SF, "My own box does FTA but that is because I work on the IRDs and need to prove that FTA works when allowed and does not when not allowed."

Translation? Yes, it is possible for a 200 series receiver to do FTA; no, Murdoch bouquet data streams are not likely to authorise these receivers to do FTA. Which brings us around the circle to some clever person getting into the IRD's software through a back apron port and figuring out how to instruct the box to do FTA. No doubt when this has been accomplished SF will be publishing those instructions.

We found each of the 200 series units we received for test would load virtually anything in the sky - from various PowerVu services to NBC Asia to Rebar



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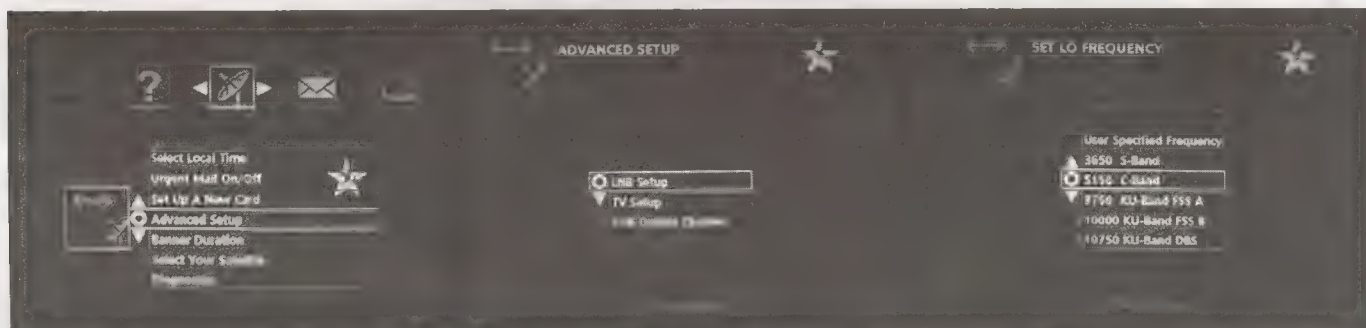


200 SERIES will "lock" to PowerVu but will not display reception (California PowerVu PAS-2 shown)

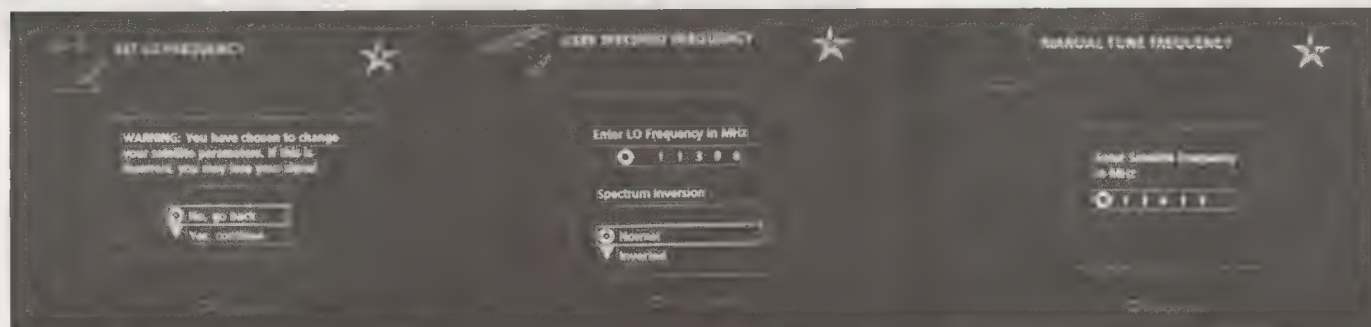
(Taiwan on AsiaSat 2) to even the Ku service of SPACE TV Systems; simply enter the correct LNB, RF, Msym, FEC and format choices from the installation menu and you are away.

Within the installation menu is a display that purports to help you with dish alignment (right hand, above).

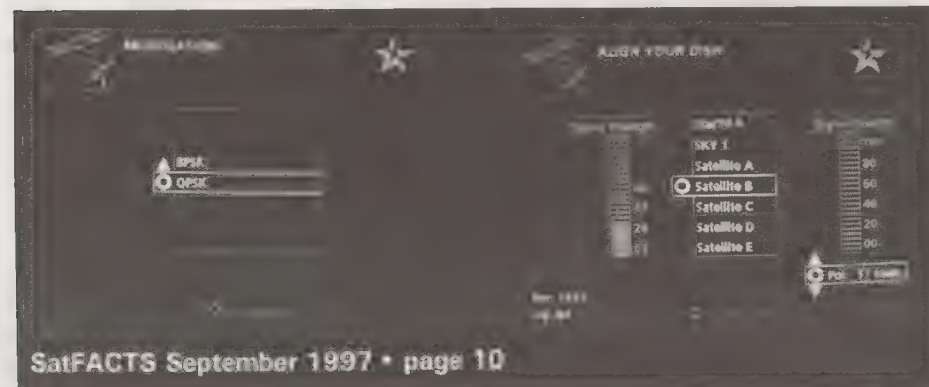
Having selected the appropriate satellite ("Satellite B" was where we loaded California PowerVu parameters), you have a signal strength display (left) and a signal quality display (right). We found these displays all but useless; signal quality registered "00" (no display at all) when in fact reception quality was very good for the



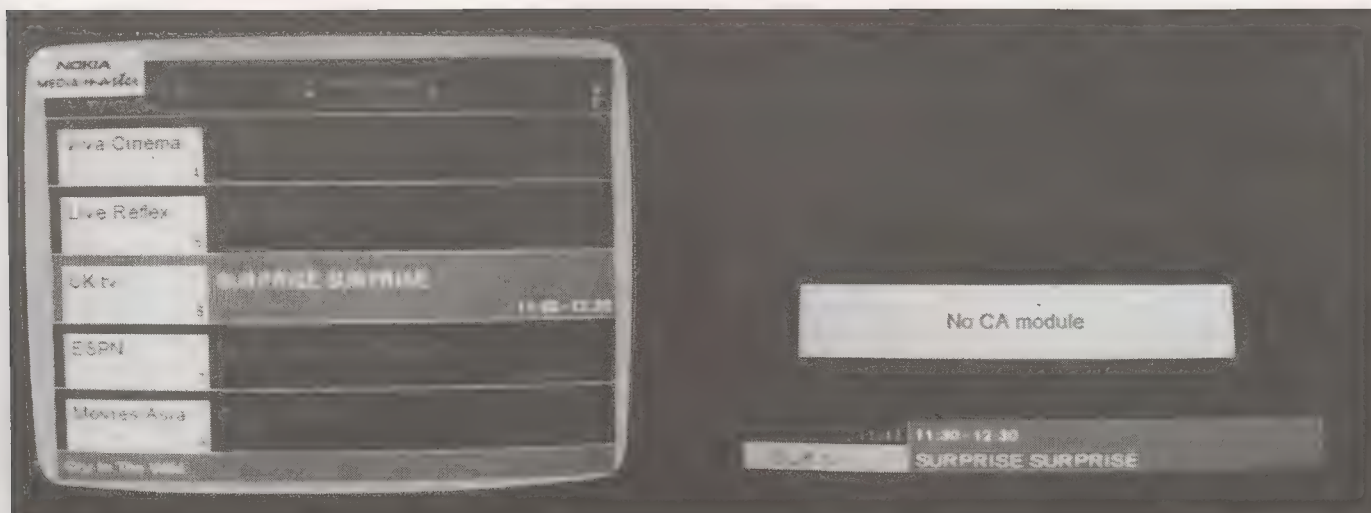
Enter advanced set-up (left), select LNB set-up (centre) and appropriate LNB local oscillator (right)



Warning comes up advising dangers in resetting LO frequency (left); as 11300 is not included on the menu, it is "user specified"; manual tune (downlink) frequency (12612 for test of SPACE TV Systems feed) entered



Next- Msym and FEC are selected, and finally, choose between "QPSK" (correct) and BPSK. "ber" and "sig" are brought up by simultaneously pushing four buttons on front panel (see text); this from SPACE TV Systems feed on Intelsat 702. If receiver locks during menu entry, push four buttons on front to unlock.



COMING IN THE BACK DOOR - while the various Nokia FTA units will not access NDS encrypted services, a Nokia (1.63 used here) will access the programme guide data stream from the AsiaSat 2 STAR TV streams (3740 Vt here) producing the twin displays above. Guide shows "UK TV" on programme channel 6 with "Surprise Surprise" while going to that channel (right) shows lack of CA (and authorisation) required.

authorised Sky Channel (of interest, PowerVu - above - with an even better indicated 'ber' *did* register on the quality scale, which tells us the receiver is *processing* the multiplex stream of PowerVu, even if it won't *show* it!). In this display, there is an audible intermittent tone (like a bird chirping very rapidly). In theory, as the dish is moved to peak the signal, the tone repetition rate changes to reflect more or less signal (i.e., if you can hear the tone, you can peak the dish by the sound of the tone). This works slightly better than the on-screen displays, but only slightly. Now, if you take both thumbs and press all four buttons on the front panel simultaneously (four buttons left-centre ending with "-" and "+"), in the lower left corner of the screen a twin display should appear. Here it says "ber: 131" and "sig: 122." BER is bit error rate but rather than the more familiar PowerVu "3.1 -4" system, the 200 translates the bit error rate to some number between 0 and 10,485. A smaller number (131) is better than a bigger number (1,971). "0" would be no errors at all. We found the BER displayed could rise to as high as 6,000 and there were no noticeable artefacts (tiling, dropouts).

Room for Improvement

There are two known (to SatFACTS) "bugs" with the current version software in 200 series receivers being

distributed. Bug "one" relates to the receiver losing either video, or audio, or both when in fact there is nothing wrong with the incoming signal. The screen comes up with a in-built software display that begins with, "Technical Problem" (see p. 13, here). The (Pace) explanation for this is as follows:

"For some reason the IRD loses the SI (system instructions) or behaves as if it has lost the SI. Why one component of the multiplex (such as video only) should quit while the other continues to function is a mystery. The present Indovision solution is to turn off the receiver by pulling the mains plug, wait a decent interval, and restart it."

Our receivers routinely shut down on average once every 24 hours. We found we needed to leave the AC mains plug out for at least 10 minutes to get our units back operating. Indovision installer instructions advise 10 *seconds* - which we tried and sure enough the receiver "fell over" again in an hours time or less.

The second problem relates to a right hand edge of screen jagged line. The "space" between the leading edge of a horizontal line to the start of the active picture is out of CCIR spec. *All* IRDs made by Pace for News Corp have this problem! Pace promises a software fix, to be downloaded to all receivers, at some future date.

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SKY CHANNEL (Australia) RACING SERVICE ON OFFER

Sky Channel is the first and only satellite television channel dedicated to providing the best of Australian, British, Irish and other international racing. Sky has a weekly audience of 1.7 million in Australia and a growing international audience through CATV, SMATV and DTH services. Each week Sky Channel broadcasts "live" on average 280 thoroughbred horse races, 420 greyhound and harness races to more than 5,700 customer outlets. With more than 36,000 races each year and 12 hours of programming each day, there is enough racing on offer to satisfy even the most demanding fan. To augment this heavy racing schedule, Sky Channel has acquired the rights to specific boxing matches. For example, Sky Channel has the exclusive distribution right to pubs and clubs for all fights involving Kostya Tszyu, Oscar De La Hoya and Prince Naseem Hamed; three of the more exciting and crowd pleasing boxers in the world.

Sky Channel is presently available throughout Australia and with the recent addition of an MPEG 2 digital feed on AsiaSat 2, over a tremendous segment of the world extending from Turkey on the west to Japan on the east, the CIS on the north and New Zealand to the south. Through an alternate (Intelsat) link, Sky Channel is delivered to more than 60 betting shops and gambling casinos in the USA. The impact of the Sky Channel service is best measured by the viewer support and betting activity from such diverse points as Pakistan, Sri Lanka, New Zealand and isolated Pacific island states such as Nauru. Cable systems in New Zealand offer Sky Channel and negotiations are underway to offer the service on cable systems elsewhere as well; including Australia.

"Selling" Sky Channel

Sky Channel is a particularly attractive service for a TVRO system dealer to offer because of the "level" of clientele. There are two primary categories and many sub-groups. Sky Channel is all about racing and in the world of horse racing it does far more than simply cover actual races. Regularly scheduled programmes go inside the world of race horse training, horse breeding and with a staff of experts daily programming looks at

This report prepared in part by *Sofey Youssef*, Publicist for Sky Channel, and, with material provided by SatFACTS readers throughout Asia and the Pacific. Sky Channel Pty Ltd, 79 Frenchs Forest Rd, Frenchs Forest NSW 2086, Australia.



Harold Park		R7		5-120 OLD	
0 min to Start		NSW Win			
		\$14,070	\$32,137		
1	Ima King	57	52	46	38
2	Carden Abbey	20	18	22	11
3	Crosscurrent	1.50	2.10	1.80	2.20
4	Iceberg	13	10	18	25
5	Adrika	31	27	30	19
6	Mr Jasper	25	11	10	5.50
7	St Bollen	24	26	24	17
8	The Raven	6.00	4.30	4.50	8.00
9	Turbul Terror	8.40	7.30	9.10	6.00
10	Hay Smooth Talker	28	25	43	37

racing activities world-wide. "Inside Running" (Fridays 0800 UTC), hosted by John Tapp, puts a personal face on the many "characters" involved in the horse racing world. "Bred to Win" (Thursdays 0800 UTC) showcases the magic of thoroughbred racing featuring studs from throughout the world.

To be blunt - there is so much money in horse breeding and racing that people involved in this business consider an investment in a satellite system to stay in touch with their industry "small change." For most of the AsiaSat 2 coverage area, a dish in the 3m and down class is adequate (although some low-look angle receiving locations in New Zealand will require a 3.7m dish). A typical package sells for upwards of US\$10,000 (viewing rights included) and often involves multiple (SMATV) viewing locations. In addition to breeders, commercial establishments such as pubs and clubs, betting parlours and race track club houses are prime customers.



Pace DVS-200 series receiver (see p. 6, here) identifies Sky 1 bouquet and has preloaded digital reception parameters (see below). If reception is lost, screen fills with "Technical problem" announcement (right).

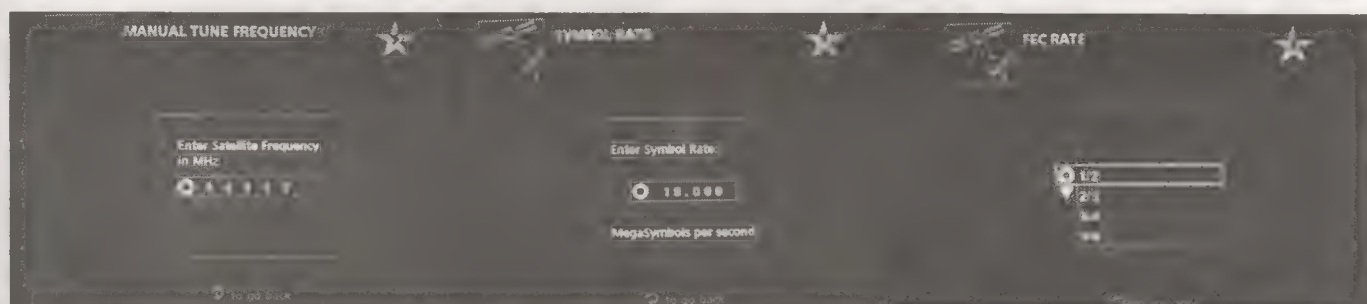
Sky Channel represents the type of service which is ideally suited to satellite distribution. The number of interested users, capable of affording the relatively high installation and use-right costs (1) in any geographic area, is small. But their interest in the service and their ability to pay is high. As everyone who deals in satellite knows well, one of the major problems in selling private dish installation systems is copyright. There is a limited number of sources for entertainment programming world-wide and each source attempts to sell and resell individual programmes in as many geographic locations as possible. This prevents services such as EM TV from allowing viewers outside of their designated market region (which is PNG) because the owners of programmes such as *Baywatch* insist on "market protection." Sky Channel is quite unique in this respect: It owns and controls world marketing rights for the racing events it offers and is able to take the service to virtually any world location where there is revenue available. There are no artificial "copyright limits" to their audience reach.

The service is transmitted to the Asia + Pacific region on AsiaSat 2, 4015 MHz vertical. This is an MCPC bouquet with three separate programme channels on board (the "other two" are proprietary to 9 Australia and at least one of these is thought to be a very secure feed of 9 Australia programming to an extremely small number of sites in Asia and the middle east). The signal level (eirp) is significantly below what it should be (by

several dB) and Sky Australia blames this on "the additional loading of the MCPC by the 9 Australia users." In fact, close comparison of the 4015 MHz MCPC level to other MCPC services on the vertical polarity of AsiaSat 2 suggests there is another reason (those operated by STAR TV- for example -with up to 8 programme channels, are consistently stronger on the ground than the Sky Channel MCPC service). None of this is to suggest you will have special problems in designing and installing a DTH terminal for Sky Channel; it does say that if you have been putting in Star (or EBB) MCPC terminals for AsiaSat 2 reception, you should check the actual signal level on the 4015 vertical transponder before selecting a suitable dish size. You will need several dB more antenna gain for Sky Channel than for most of the other MCPCs on AsiaSat 2.

The Pace DVS-200 series receiver used by this service came out of the box, plugged in, turned on and instantly produced quality pictures and sound. A later-to-develop problem (with the receiver's SI stream; see p., 6 report) was quickly and professionally diagnosed by the technical staff which Sky Channel maintains. These are good people who care about assisting installers with their problems and their programming product is first-rate as well. This is a winning combination.

1/ Contact Bob Pankhurst for sales information.
Tel (+ +61-2)9451-0888, fax (+ +61-2)
9452-2222. A programme schedule is available
through fax (+ +61-2) 9975-6401



Primary installation menu parameters for Sky Racing on As2

WELCOME TO THE 21ST CENTURY

The number of new satellites taking flight during the last six months of 1997 and the first half of 1998 is significant. Moreover, the orbit slots available for new satellites are increasingly coming under pressure from planners who expect to occupy their designated positions by the end of 1998.

The largest "unknown" is the future of the now old and rapidly ailing Gorizont family of Russian satellites. A Gorizont satellite seldom had a useful life in excess of five years (SF#s 8, 10 and 24). By design, Gorizonts are inclined at launch date and only appear to be geostationary (i.e., hovering directly over the equator) for a relatively brief 3-6 months near their mid-life period. As the inclination (movement north and south of the equator) increases, their usefulness for TV broadcasting diminishes since to receive them the user must have a dish capable of tracking the bird flight in a giant, ever enlarging, figure "8" pattern. Gorizonts are 1980 era satellites lingering well past their nominal useful life period.

The Russians maintain the world-circling fleet of ailing Gorizonts primarily to protect their claims on orbital spots. Gorizonts were part military and part public broadcasting devices. The military needs have largely disappeared or have been replaced with more sophisticated satellites. The asset held by the Russians here is not the actual satellites but the parking spots they occupy.

With decreased Russian military need for Gorizonts, funding to simply replace the old satellites with new ones has disappeared. Moreover, replacements would not be the relatively inexpensive Gorizont design; rather, they would be the newer Express design satellites which have the by-design ability to last 10 to 15 years and maintain geostationary location through their lifetimes. And one Express costs as much as six Gorizonts. There is simply not money available, with the Russian Military no longer interested, to build one for one an Express replacement for each Gorizont location around the globe.

Moreover, the Russian space programme has been privatised. That means every new Russian satellite first must find money in the world's speculative money markets just to get built, more money to get launched, and even more money to be operated. The Russians may be fast learners but they are in the same money world as PanAmSat + Hughes, Intelsat, and a dozen lesser known

operating entities as they chase dollars to build their replacements for Gorizont.

One Russian group is trying to raise capital to take over at least some (which is not known) of the Gorizont orbital spots. *Intersputnik VIII* has US\$30 million raised to date, and it probably needs US\$1 billion just to become an entry level operator of "next generation" satellites. What they bring "to the party" is a close connection with the well respected Russian Proton launch service, and a handful of unspecified orbital locations (59.5E and 75E are registered).

What all of this means for the existing Gorizonts is uncertain but analysts in the satellite industry believe the majority of Gorizont orbital locations will be traded or sold by the Russians for hard foreign currency. As the table here (below) illustrates, there are a few very desirable C-band locations in the Russian camp and no doubt some of these would bring in hundreds of millions of (US) dollars in rental fees over the next decade plus. In one likely scenario, the Russians will hold onto

Location	Designator	Bands	Launched
170W	Raduga 25 & Raduga 21	3.4-3.65 GHz	1990, 1987
161E (a)	Gorizont 29 (PASI -1)	3.65-3.95 GHz	1993
145E	Gorizont 21	3.65-3.95	1990
142.5E	Gorizont 30 (Rimsat 2)	3.65-3.95	1994
140E	Gorizont 22	3.65-3.95	1990
(130E)	(was Gz 29)	(3.65-3.95)	(1993)
128E	Raduga 27	3.4-3.65	1991
103E	Gorizont 25	3.65-3.95	1992
96.5E	Gorizont 19?	3.65-3.95	1990
90E	Gorizont 28	3.65-3.95	1993
85.5E	Raduga 30	3.65-3.95	1993
80E	Express (2)	3.65-4.15	1996
78E	Raduga 31	3.4-3.65(?)	1994
74E	Raduga 26	3.4-3.65 (?)	1990
70E	Raduga 32	3.65-3.95	1994
53E	Gorizont 32	3.65-3.95	1996
49E	Raduga 1-3	3.4-3.95	1994
40E	Gorizont 31	3.65-3.95	1996

40E

indicates in use for C-band television:
(a) not Russian orbital location

-REPORTS of the new Intelsat 701 at 180E / As SatFACTS Goes to Press-

At 1600UTC September 3rd (0400 on 4th NZT, 0200 AEST) Intelsat 701 finally became the operating satellite at 180E. First reports in summary form: Fiji observers find signals on average 4dB hotter than 511, and are delighted to be rid of the tracking problem! Across New Zealand, 3dB better than 511 seems to be an average number; eastern Australia reporters tell of 2-4 dB on most transponders. Some surprises: There were not many but RFO's continued presence on 4047(R)/IF1103 may only be temporary as Intelsat has been saying RFO will go to an eastern-hemispheric beam (which would mean no RFO reception west of 180E).

RFO has also been saying they will add RFO-2 as well and the eastern hemi may in fact be delayed until RFO-2 is ready to begin broadcasting? Perhaps a Tahiti reader can update us.

Of the more intriguing services (again) available from 180E, we draw your attention to:

- 1) Vidiplex (two video services sharing the same frame, each using alternate lines) from USA networks ABC and CBS on 4140/1010 (ABC audio on 6.14, 6.32, CBS on 5.94, 5.75, 6.66);
- 2) NBC occasional programme feeds on 3880/1270 and 3896/1254, NTSC and often in the clear;
- 3) Sport feeds (US Open Tennis at press-time) on 3934/1216.

WorldNet, an old standby on this satellite, continues on 3975/1175 but we are advised this feed will cease on November 1st (also on AsiaSat 2, 3885/1265Hz). MPEG-2 low Msym rate equipped readers should check out 4162R at 5.632, FEC 3/4. Other MCPC/SCPC signals are listed on page 31.

We plan a more detailed report in SatFACTS 38, and urge Asian viewers with access to the Ku services of this satellite to advise us what they have observed.

ultimate title for prime locations but "lease" use of these locations to non-Russian firms (much as Tonga now does for 134E, 138E). And if they are successful in raising capital in the world markets, a smaller number of orbital locations will be retained to be operated as commercial sites by one or more CIS-based firms. Finally, an even smaller number of orbital locations will be held for expansion of the now staggering Express family of satellites which combine in the best of Gorizont tradition military and commercial traffic from

a single orbital location. But which locations will develop in what direction?

Meanwhile, another argument is developing around 120-124E as ApStar 2R heads for 121E (once again, without permission) and AsiaSat rushes a "rental satellite" to 122E to enforce their claim there.

Orion, an Atlantic region operator in the PanAmSat mould, intends a C + Ku bird in the 172E region in 1999 and that will increase the commercial pressures on Intelsat and PanAmSat for the Pacific basin area.

Launch Time Frame	Clarke Orbit Position	Satellite Name	Trs on Board	Detail	Bird made by
Aug 97	144E	Agila 1	30 C, 24 Ku	C, Ku DTH	SSL
Oct 97	121E(a) 76.5E(f)	ApStar 2R	28C, 16Ku	C, Ku DTH	SSL
4th Qtr 1997	122E(a)	AsiSat 4 temp (b)		C DTH	
4th Qtr 1997	83.5E	Insat 2E	18C	C band	ISRO
4th Qtr 1997	?	SinoSat	16C, 6 Ku	C, Ku relay	Euro-space
4th Qtr 1997	(115.5E ?)	China-Sat 1			Lockheed
Oct 10 1997	106E	Indostar 1 (c)	5 S band, L	S DTH	
Nov 97	105.5E	AsiaSat 3	28 C, 16 Ku	C, Ku DTH	Hughes

a/Another example of "Squatter's Rights" mentality by ApStar; b/ Temporary (rental) satellite to enforce rights to 122E until As4 launches; c/ Renamed Cakrawarta; d/ JcSat 6 will replace JcSat 4 at 124E and be renumbered JcSat 4A; e/ JcSat 4 to 124E April 1997 (final location JcSat 4 unknown); (f) Or, 76.5E if 121E does not work!

Launch Time Frame	Clarke Orbit Position	Satellite Name	TRs on Board	Detail	Bird made by
Nov 13 1997	150E	JcSat5	32 Ku	Ku DTH	Hughes
1st Qtr 1998	At/near 68.5E	PAS 7	24C, 24 Ku	C, Ku DTH	SSL
1st Qtr 1998	88E	ST-1	14C, 16 Ku	C, Ku DTH	MMS
April 1998	124E	(JcSat 4) (e)	12C, 28 Ku	C, Ku DTH	Hughes
1st Half 1998	120E	Thaicom 4	12C, 18 Ku	C, Ku DTH	Aerospatiale
1st Half 1998	91.5E	Measat 3	6C, 9 Ku	C, Ku DTH	Hughes
1st Half 1998	116E	L Star 1	24 Ku	Ku DTH	SSL
June 98	124E	JcSat 6 (d)	32 Ku	Ku DTH	Hughes
3rd Qtr 1998	near 166E	PAS 8	24C, 24 Ku	C, Ku DTH	SSL
Late 1998	95E	Intelsat KTV	30 Ku	Ku DTH	MMS

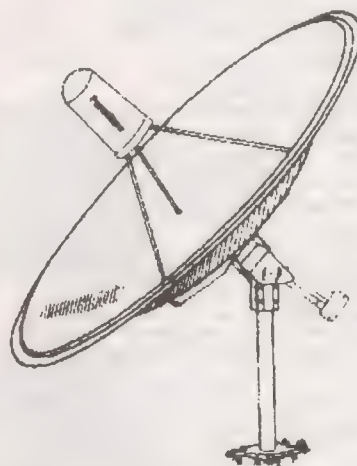


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DIGITAL PROGRAMMING UPDATE 97-6

The "return" of FTA Exxxtasy (adult channel) programming on Nokia e3 receiver channel designator 904 September 1st leads this month's report. Significantly, SPACE TV Systems has rearranged their channel line-up so that Exxxtasy no longer appears within the normal Mandarin language programme channel group (channels 200-208). The Exxxtasy material is as triple-X as ever, but runs on an erratic basis (as early as 0300 UTC, more often after 0900 UTC; it goes off with no warning, usually at the top of a new hour). When first tested in June it was running 24 hours per day. Also within the SPACE Systems bouquet on Nokia e3 channel 207 is an often R-level movie FTA service in English (or original language French) with Mandarin subtitles, from around 0400 UTC to 2000 UTC. The "R" in this service may be because of sexual content; more often it is because of violence (cutting people into small bits to feed them down the garbage disposal seems to be a passion of this service). The movies run back-to-back, no "channel identification" and their reason for being is unclear (other than making a statement about the extent of SPACE TV Systems service variety).

Discovery and AFRTS (177E) have upgraded their affiliate D9223 receivers through over the air enhancement. The process was instructive. It seems that if you were parked with your SA receiver on the appropriate programme channel when the enhancement was going on, the data stream erased previously (factory) loaded software 2.00 with newer software version 2.014. Now, in theory only receivers which had been specifically addressed and told to go to a data downloading (DCP) channel should have been upgraded. In fact, observer Stu McLeod and others were able to get their software upgraded simply by being tuned to the correct frequency and programme channel.

McLeod then found his receiver would do frequency and FEC search just as SatFACTS reported the latest SA installed software will do (SatFACTS August 15, p. 6). And his receiver didn't have to go back to Sydney nor did he have to pay out US\$525 for the upgrade! Curious about this? See box insert here.

The people at Perth's GWN have ducked for cover since SatFACTS reported their decision to replace B-MAC analogue encryption on Optus with PowerVu MPEG-2 on PAS-2 Ku (SF August, p. 30). As Coop's Technology Digest for August 28th reported, there will be at least two "MPEG standards" in use in Australia. GWN and Imparja seem to have decided in favour of PowerVu and distribution on PAS-2 Ku. ABC and SBS continue (at presstime) to lean towards "the second standard" which is described as the system selected by Galaxy/Foxtel for satellite distribution. Before you assume that means the Pace DGT-400 and Irdeto conditional access system, hear this. It is now increasingly possible that with Australis/Galaxy control passing into the Murdoch/Foxtel/Packer camp that the DGT-400 plus Irdeto system will be tossed out in favour of a variant of the Pace DVS-200 series box we review in this issue (p. 6). Why? A multitude of reasons including the fact that the 200 series receivers are far more friendly for pay-per-view movie and sport sales than the DGT-400 package. If this present Murdoch plan comes to pass, the DGT-400s will be replaced during 1998 with the Pace 200 series boxes; all 110,000 of them. And New Zealand's Sky Network will also use the same series of Pace IRD.

Therefore, if ABC and SBS and other present B-MAC "broadcasters" are going to decide in favour of the "second" MPEG standard, it will be whatever system that Galaxy/Australis/Foxtel also ends up using. To further complicate matters, the Telstra Bendigo

Tuning In to SA's Over The Air Software Upgrade Service

As reported on page 1 in this issue, the SA/PanAmSat PowerVu "software upgrade" is now underway. One observer reported seeing an announcement on CCTV-4 (PAS-2 digital feed) alerting viewers to "leave their receivers tuned to the service" if they wished to have their software "upgraded." This observer did so, left the receiver on overnight tuned to CCTV-4 and when he awoke the next morning - the receiver wouldn't work on any PowerVu service. The message here? Until PanAmSat and / or SA come out with explicit step-by-step instructions for participating in the over the air software upgrade, stay away - far away - from this entire procedure!

How do you know they are performing an upgrade? Excellent question - no real answer. Some observers found that the LCD front panel screen said "DCP" during the upgrade. Unfortunately, it appears that if it says DCP it is too late to bail out. A New Zealander who saw "DCP" and then moved his dish to a new satellite also found his receiver was "dead" when he got to the new bird. The procedure, as best we can figure out, starts by erasing some or all of the existing software before it reloads new software. If you interrupt the procedure (as moving the dish did for our reporter), you may have done so at a point where important software has been erased but not yet replaced. And in this case your D9223 suddenly becomes a "dumb receiver" with not enough information left in memory to perform even simple tasks. If you are reading this before reading page 1 in this issue, now go back and read page 1!

(Victoria) feed of ABC, Imparja plus ABC radio and Imparja radio was joined September 1st by a second ABC TV feed. If you go into the menu on the D9223, it says this is "FTA ABC" and most of us recognise "FTA" to mean free to air. Is this 12.300 vertical feed going to be the home of the GWN and other PowerVu services? We should know the answer to this and other questions by mid-November.

Coop's Technology Digest also reported that Scientific Atlanta is releasing a US\$800 price range "consumer version" PowerVu receiver shortly. This unit (9224 or 9230 depending upon which source you believe; we believe 9230 is correct) is designed to operate as a replacement for the present Plessey or SA B-MAC decoders the HACBSS broadcasters have been using for more than a decade. And, for the first time, SA will set up "dealer/service centres" throughout Australia (perhaps 8 in all) to handle consumer queries and problems relative to the new PowerVu distribution for HACBSS.

Hyundai has really sunk their teeth into the HSS-100C upgrade project. As SF for August was going into the mails, a handful of special sample chip sets supplied by Hyundai to distributors (such as Skandia) and individual users/dealers (including several in PNG) were being tested; see p.32 SatFACTS for August. Now, there are upgrades to the upgrade and as this issue of SatFACTS goes to press it appears the third upgrade in less than a month is making the rounds. Here's what they do:

- 1) Expand from 60 to 100 the number of storable transponders (that is transponders, not programme channels);
- 2) Eliminate the "pause-pause" fix for the NTSC glitch
- 3) Adds an on-screen signal level meter with a fine tune function
- 4) Fixes the last channel viewed problem (when the receiver is turned off or power is cut)
- 5) Calculates a carrier to noise ratio for level checking
- 6) Improves the overall sensitivity of the receiver

Nokia's long promised 8200S model (for which data sheets were first shown at the London Cable and Satellite Show in April). Status? A Nokia sources tells us we should not expect this unit "soon." What Nokia has released in sample quantities is model 9600S, claimed to be a "do everything conditional access" receiver as well as FTA unit. Early reports say the 9600S will accept Open-TV platform CA modules which take the smart card directly into the module rather than into a separate slot. Nokia claims the internal software will recognise Viaccess (the system to be used by SPACE TV Systems), Telenor and Nagra data streams. Availability not announced - first live showing was in Germany early in September.

In Taiwan, distributors are selling a receiver for the SPACE TV Systems service which looks nothing like the unit SPACE is showing in their promotional package on 177E (see photo, p. 29, August 15th). The Taiwan

unit is called the CD.TV200 "XSAT" by "Xcom." The manual for this receiver includes a photo which is uniquely packaged unlike any IRD we've seen to date. The XSAT CD.TV200 is linked in the operations manual to the European Hot Bird/Eutelsat digital package and includes multiple references to the "French Telecom Viaccess" CA system. The companion remote control has 32 buttons arranged 4 wide by 8 high. This receiver has a Msym range of 2-30.5, allows (decimal) PID entry and has the Viaccess/Simulcrypt CA system. One unique feature - L-band input "loops" allowing stacking of multiple receivers without external splitters. European price is around A\$1050. CD.TV300 is expected in October which they claim will do analogue FTA as well as digital; now *that* is interesting.

Another new European receiver is the German built Radix Epsilon X; designed for FTA MPEG covering a limited Msym range of 18-30.

The Panasat 635 appears to be at the end of its production run and any stock remaining in South Africa is designated for sale there. A newer model is promised shortly after the first of the year.

Technical Tip for September

If your IRD won't lock and load a service you think it should, try reducing the input signal level to the receiver with a power-passing 6 or 10dB attenuator. The Nokia and SA D9223 in particular hang up when presented with too much MPEG signal!

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Consumer Reaction to Digital

Consider for a moment how confusing this transition from analogue to digital TV transmission would appear to the average consumer. As a professional or enthusiast in the field of satellite television, you probably find it difficult from time to time to stay current and understand the side effects of subtle changes in technology. Now erase all that you know about the technology, and listen to the message "being broadcast" world-wide these days:

"Over the next ten years all of your existing television service will be turned off to be replaced with something new called digital television. In the same ten years, your television set(s) will merge into computers that also show television (or televisions that also function as computers). The videotapes you now rent at the corner video store will disappear to be replaced by movies on CD ROM discs called DVD. The family camcorder will be replaced by a digital version. And your television will come to you via satellite or cable rather than from a local mountain top TV transmitter."

As more and more general publications pick up on this line of reporting, increasingly consumers are being told, indirectly, "Don't buy a new TV set now - wait a few years because the sets now being sold won't function in the new digital world."

In the United States, the existing TV stations (more than 1,700 nation-wide) have been told by the federal government that on or before December 31, 2007 they must shutdown; to be replaced by digital (only) TV broadcast stations. A similar date has been announced in the UK and most European broadcasters plan to turn off their analogue services by 2010.

Television, the most powerful and universal information and entertainment system in the history of the world, is going through a dramatic metamorphosis. Broadcasters world-wide will spend hundreds of billions of dollars - trillions all told - to convert. The cost to the consumers (for new TVs, VCRs,

camcorders et al) is so immense as to be immeasurable. It is as if the entire information delivery system of the world was being re-invented. And the changes are not just in television; even the old, familiar favourite radio is undergoing a similar "digital revolution" with VHF and UHF terrestrial and microwave satellite delivery of multiple channels of CD-quality digital sound already testing. And it does not stop there. Wireline telephone services are in for an even more dramatic change as hundreds of Iridium and similar LEO (low earth orbit) and MEO (medium earth orbit) satellites come on line in the next five years (indeed, the first Iridium satellites have already been launched). Once again, the catch phrase is "digital" (wireless).

When the US government this past April put an "official stamp" on their plan to convert all television broadcasting to digital within ten years, consumers reacted by stopping their purchase of new TV sets. Retailers, distributors and manufacturers went into a panic; digital TV offered an exciting future but not for several more years. In the interim, how would they stay in business if people quit buying new analogue TV sets? Some manufacturers responded after the shock of seeing sales all but stop by offering very generous trade-ins towards future digital TV sets to anyone who purchases an analogue set today. Others took out full page newspaper advertisements promising consumers their analogue sets could be made "digital ready" with a set-top digital to analogue converter, effectively promising, "Your new analogue TV you buy today will still be useful in 2007."

When consumers are confused they stop buying. In the USA, consumers are also confused by satellite digital TV offerings and they have greatly slowed down their purchase of DTH in recent months. There is a lesson here for the Pacific - as we gradually move from analogue to digital and terrestrial to satellite, let's try not to confuse the consumers in the process.

MEMBERSHIP IN SPACE

Membership in SPACE Pacific is open to any individual or firm involved in the "satellite-direct" world in the Pacific and Asia regions. There are four levels of membership covering "Individuals," the "Installer/Dealer," the "Cable/SMATV Operator," and the "Importer/Distributor/Programmer."

All levels receive periodic programme and equipment access updates from SPACE, significant discounts on goods and services from many member firms, and major discounts while attending the annual SPRCS (industry trade show) each January in Auckland. Members also participate in policy creation forums, have correspondence training courses available. To find out more, contact (fax) 64-9-406-1083 or use information request card, page 34, this issue of SatFACTS. Page space within SatFACTS is donated each month to the trade association without cost by the publisher.

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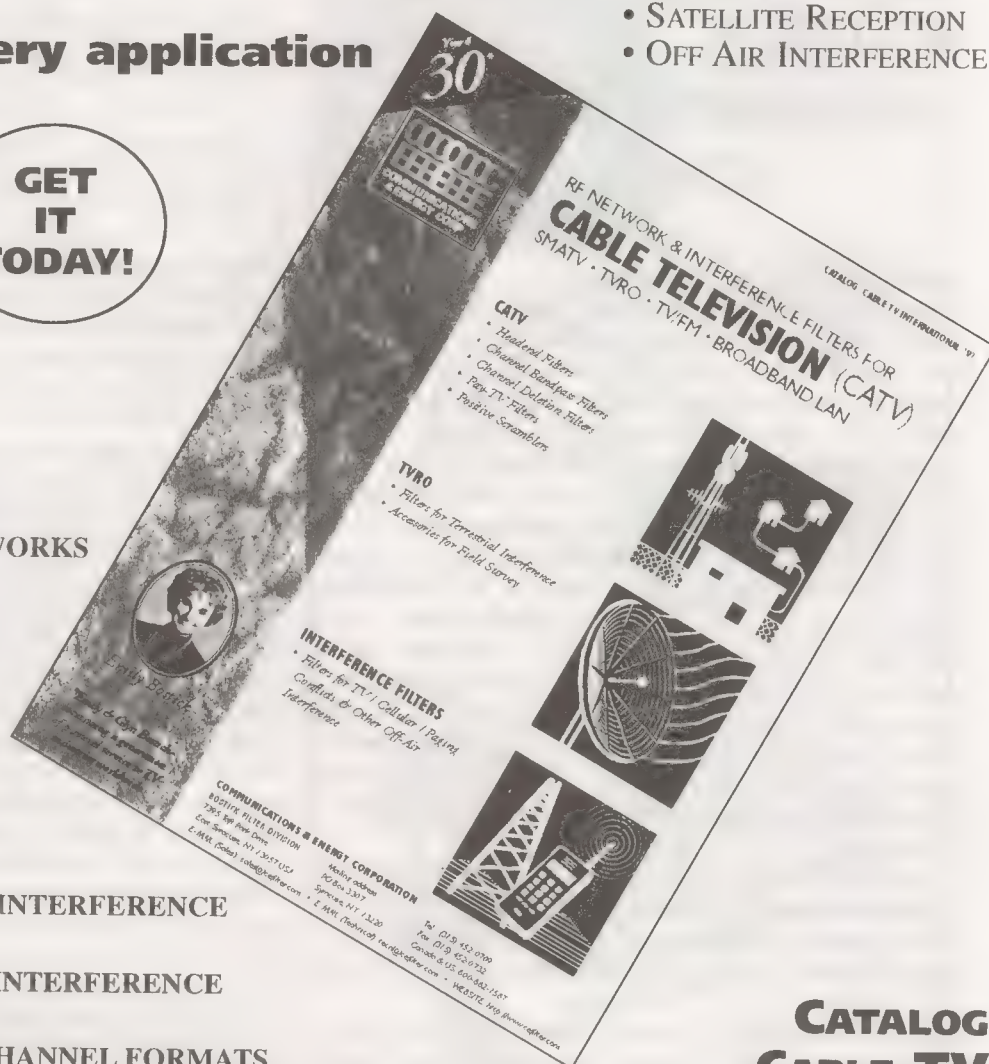
BOOKS: CATV, TVRO, MMDS, INTERFERENCE

APPENDIX A: INTERNATIONAL CHANNEL FORMATS

APPENDIX B: INTERNATIONAL CHANNEL FREQUENCIES

APPENDIX C: ORIGIN OF CATV, TVRO, PAY-TV

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Cablevision	cable	USA	NZ\$2,774
Comcast	cable	USA	NZ\$2,608
Cox Comm.	cable	USA	NZ\$2,509
TCI Satellite	satellite	USA	NZ\$2,468

Learning From The SKY (NZ) Sale

As reported in Coop's Technology Digest (August 28th), the year long effort by New Zealand Independent News Limited (49% owned and certainly controlled by Rupert Murdoch News Corp interests) came to fruition on August 26th. SKY Network Television Limited is now 48% owned by INL. This closing comes on the heels of a similar end-result action in Australia during June and July which effectively brings Australis/Galaxy into the News Corp business family as well (subject to the almost certain approval of the [Australian] ACCC). In these two acquisitions, Murdoch adds an estimated 301,000 New Zealand pay TV subscribers and 110,000 Australian Galaxy satellite + MDS subscribers to his world-wide holdings. Few doubt that over the next 6 to 12 months there will be a significant combining of the New Zealand and Australian assets, a sizeable reduction in staffs as the two merge into effectively one pay TV operation, and a common hardware and marketing plan for the future growth of the services.

Analysts in New Zealand were shown a detailed Sky "Appraisal Report" prepared by merchant banking firm Bancorp early in September. There is insight into the way financial experts view the Sky (NZ) operation from this nearly 50 page report.

In the cable and pay TV worlds, much is made at the time of any business sale of the "price per subscriber" paid. This goes back in history to the 1950s when cable TV systems in North America were being traded based upon something called "cash flow"; or, the money the business generates above and beyond its day to day operating costs. Cash flow is a difficult entity to quantify because there are numerous variables which a clever accountant can use to magnify or hide various business aspects of a cable or pay TV system. Searching for a simpler yardstick to measure the sale of cable TV (and later over the air broadcast TV) businesses, "price per subscriber" evolved. It is a very simple number to calculate:

Take the total price paid for the business, and divide by the number of paying subscribers at the time of the sale.

\$1,000,000 paid for the business, 500 paying subscribers equals \$2,000 per subscriber. On this basis, Bancorp's extensive study comes to the conclusion that Sky's total valuation at the time of selling 48% of its company to INL was (NZ\$)998.1 million. Bancorp calculates the "price per subscriber" for Sky at (NZ) \$3,312; a hand calculator will tell you they believe Sky had approximately 301,000 "paying subscribers" at the time of their calculation.

"Price per subscriber" hides many things. It says that when you take all of the identifiable assets (satellite dishes,

decoders, studios, vehicles and so on) and add amounts for "good will," potential future subscriber revenues and a host of other intangibles, you believe the company has a value of "X" dollars. If the company has indebtedness, you would normally subtract debt from the assets to determine net worth. On a "price per subscriber" basis, accountants typically turn into crystal ball gazers and ignore everything and anything that might otherwise detract from the value of the company. The Bancorp study revealed data from a Merrill Lynch report comparing the relative "value per subscriber" for a number of pay TV systems world-wide. This analysis shows recent valuation of pay TV properties ranging from NZ\$6,296 to NZ\$2,468 per subscriber (table, above).

Just how does the price paid "per subscriber" equate to the real world? In a retail sense, "price per subscriber" might be likened to the cost of goods purchased wholesale. If you paid \$3,312 for something wholesale, how much would you expect to mark-up that item before reselling it retail? Thirty percent? Forty percent? At 30% mark-up, \$3,312 becomes \$4,305.60.

Just for the exercise, how long would it take at \$50 per month (the typical subscriber income to Sky for present day services) to get back \$4,305.60? The answer is 86.11 months; more than 7 years. And at \$3,312? 66.2 months; more than 5-1/2 years. And both of these calculations assume that the entire \$50 a month taken in from subscribers goes towards paying off the \$3,312/\$4,305 number. In the real-world, only a portion - a small portion (the profit or cash flow each month from \$50) - could be used to recover the price you paid for the original item.

So why would INL pay \$3,312 for something that it will take far longer than 5-1/2 years to get back to "even" with? The answer is far more complex than the question.

Bancorp in reviewing the Sky "business outlook" wrote:

"Sky currently has 301,316 domestic equivalent subscribers from a possible population of 1.28 million homes. Sky has commenced using new technology to exploit the remaining homes it previously could not reach. To this end, Sky has contracted to take three transponders on the Optus Australian satellite to provide broadcasting via digital satellite technology. Satellite transmission commenced in April 1997 with a sports channel, in analogue form, with digital transmission scheduled to come on stream in the second quarter of 1998. Other channels will be added progressively. Depending on compression capabilities, digital transmission offers the possibility of allowing subscribers to enjoy hundreds of channels of subscription television and to enjoy NVD (1) and the possibility of special programmes, such as premium sporting evenings being offered on a 'pay per view' basis (PPV). Adoption of digital satellite technology is likely to involve costs which will outweigh the benefits in the short to

medium term. However, there are net benefits to Sky in offering an expanded programme package of up to 15 channels per satellite transponder. *These benefits include being able to charge more for monthly subscription fees and to enhance Sky's competitive position.*

The Bancorp report properly looks at potential competitors to Sky and comes to these conclusions:

1) First Media (Telecom cable TV effort in NZ): "...offers 22 channels in limited trial areas of Auckland..."

2) Saturn Communications (cable TV in Wellington): "...offers 20 channels ...on a limited scale...business plan predicated on capturing a 'significant share' of the cable television, telephony, data and Internet markets..."

3) Clear Communications: "...has announced limited cable trials...it is expected Clear will pursue a joint pay TV and telephony strategy..."

4) Regional Electric Power Utilities: "...*(are)* continuing to explore the potential role that they may play in the evolution of New Zealand pay television..."

5) Australian Pay Television: "Competition from Australian pay television operators (Foxtel, Optus Vision and Australis Media) will depend upon the securing of New Zealand programming rights and therefore competition from these sources is considered unlikely at present. In mid July 1997 a proposed merger between Foxtel Partners, News Corporation and Telstra, and rival pay TV operator Australis Media Limited, was announced, thus indicating the first step in rationalisation of the Australian Pay TV industry. *Given News's shareholding in INL, this Australian competitive threat has been significantly reduced.*"

"While there is potential for competitors to erode Sky's existing market position, its existing subscriber base and access to premium sporting events gives it a strong competitive position. This places competitors in the position of having to purchase programming from Sky, at least for the duration of current programming contracts."

INL paid not \$3,312 per subscriber for its 48% holding in Sky; nor did it pay \$1,589.76 per subscriber (48% of \$3,312). Rather, it paid (NZ) \$308.9 million for 48% of a company Bancorp tells us is valued at \$998.1 million. If Sky really is valued at \$998.1 million as Bancorp deduces, INL just made (NZ) \$170.188 million by spending \$308.9 million for something Bancorp says is worth \$479.088 million.

Numbers. They can be made to say anything you wish to support any position you might wish to emphasise. But at the end of the exercise, Sky has more than a quarter billion dollars in debt, a costly business plan to turn their present terrestrial service system into a digital satellite only system, and long term some serious competition from telephone utilities and others who see Sky as a much weaker competitor than does Bancorp.

Sky is now into its seventh business year. It has never made a profit, never returned a dividend to its stockholders. And Bancorp doesn't expect significant profits for many more years either. Rupert Murdoch is at his best in precisely this scenario. He sees Sky NZ plus Australian holdings forming a union that will one day be publicly traded on the stock market and when that day comes he expects to cash in even if Sky is still losing money. Sometimes the numbers are more important than reality.

1/ NVOD - Near video on demand. Movies started at 30 minute intervals on a pay to view basis.

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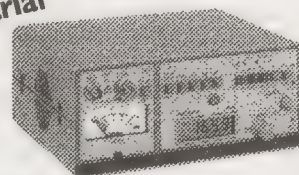
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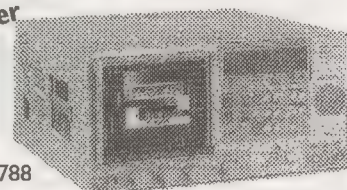


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1760

Analogue Free-to-Air 57E to 80E	
Sun Music	57E/703 1395R
Sun Mov.	1342R
Gemini	1220R
AsiaNet	1170R
WorldNet	1095R
NEPC	1085R
TVi	1025R
Muslim	975L
ESPN Feeds	64E/801 1134R
E-TV	1093/L
ViJAY TV	965R
Home TV	68.8/Pas4 Vt1310
ABN	Hz/1365
Sony TV (Hindi)	Hz/1240
Doordar & Iran TV	Vt/1116
CNNI	Hz/1065
TNT/Cart.	Hz/1040
ATN	Vt/995
MTV Asia	Hz/965
MCOT	78.5/Th3 Hz/1180
HSTV	Hz/1200
TVT	Vt/1280
Army TV NNV 5	Vt/1390
RAJ-TV	Vt/1510
UB TV	Vt/1534
Contin.TV	Vt/1565
Punjab TV	Vt/1605
TK Rossija	80/Exprs. 1475RHC
VTV4/ Mos. TB6	1275RHC
ACT/TB3	1225/RHC

Anal. Free-to-Air 80E to 113E	
Russia 3	80/Exprs 1025R
RTR 1	90/S6 1475R
Orbita I	1275R
RTR II	1234R
Orbita II	1215R
VTV	91.5/Me1 Hz/1440
Doordar.1 National	93.5/In2b 1030/Vt
Doordar.1	1160/Hz
Doordar.9	1080/Hz
Doordar.7 Telugu	1070/Vt
Doordar.9 Kanada	1180/Vt
Doordar.1	1268/Vt
Doordar.	1310/Vt
Doordar.3	1348/Vt
Doordar.4	1388/Vt
ORT 1	96.5/S14 1475R
Madagas-car	1325R
RTR	1275R
ERTU Egypt	100.4/As2 1508/Hz
TV Shopping	1490/Vt
Mongolia, Iran/plus	1470/Hz
WorldNet	1265/Hz
CCTV4	1190/Hz
RTPi	1170/Vt
RTR	103/S21 1475R
APT	1275R
CFI	113/C2 990/Hz

Anal. Free-to-Air 113E to 145E	
Brunei, feeds	113/C2 1010/Vt
MTV Asia	1030/Hz
TPI	1070/Hz
TV Indosiar	1090/Vt
ABN	1110/Hz
ANteve	1130/Vt
CNNI	1177/Vt
SCTV	1190/Hz
GMA	1240/Hz
TV3	1250/Vt
Austr. TV	1270/Hz
TVRI	1310/Hz
RTM	1330/Vt
RCTI	1408/Vt
CNBC	1530/Hz
Test Card	128/Jc3 1070Vt
CETV SD	134/Ap1A 1330Hz
CETV2	1250/Vt
CETV1	1170/Vt
CNNI	138/Ap1 1170/Vt
CCTV7	990/Hz
Orbita-I	140/S7 1475R
NTV	1425R
ViJay TV	1325L
EM TV	1272L
RTR Russia	145/S16 1275R

Japan's Superbird C has begun testing on 12.650Vt.

For MPEG-2 format digital, see pages 26/27.

Challenge? Russian MIR downlink analogue FM on 10.830 RHC.

An. Free-to-Air 148E to 180E	
Test Card	148/Me2 1070/Hz
CNNI	169/Pas2 1183/Hz
CNN Feeds	1155/Hz
NHK	1114/Hz
TV Shopping	1400/Hz
Feeds	174/I802 984R
Feeds	973R
Feeds	177/I702 984R
Feeds	963R
Feeds	180/I701 1430R
Feeds	1175R
RFO	1105R
Feeds	1020L
Feeds	984R

No home DTH subscriptions

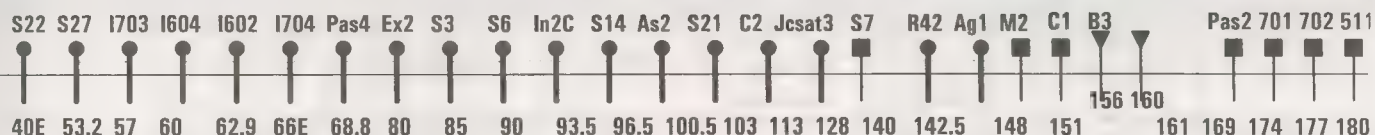
Encrypted Analogue	
Discov. India	68.8/Pas4 1365/Vt
ESPN	1290/Hz
ESPN (d)	113/C2 1030/Hz
HBO Asia (d)	1150/Hz
TNT + (d)	1390/Hz
Discovery (d)	1430/Hz
Discovery (c)	169/Pas2 1374/Hz
ESPN (a)	1288/Vt
TNT + (a)	1218/Vt

NON MPEG-2 DIGITAL SERVICES

People's Net (GI 1.5)	113/C2 1220/Hz
RPN-9 (SA 1.5)	142/G2 1225L
Fox/Prime (SA 1.5)	169/Pas2/ 1161/Vt
Filipino Channel (GI 1.5)	1060/Hz

SEPTEMBER ALERT

Rebar PowerVu (As2, 3785Vt) has added 5th TV channel, FTA tests at press time. Thelcom below 3700 Vt services added this month are Asia coverage only. China DFH-3, supposed to be at 125E, is still not reported. InSat 20, supposed to be at 74E or 97.5E, also not reported. ApStar 2A to 121/77E is likely before October 15 (Long March launch). Reports, no verification Sky London News PAS-2 Ku 12.287 Vt (6.620, 3/4). While on PAS-2 Ku, switch to Hz and check 12.513, 12.525, 12.529 (MPEG-2).



OPTUS B3 156E (Ku only)

ABC WA	1358/Vt B-Mac
Central ABC HACBSS	1393/HZ B-Mac
Imparja	1355/Vt
GWN	1300/Vt
Net 9, Sky specials	1233/Vt B-Mac
ABC NT/ Imparja N.T.	1201/HZ (centre) B-MAC
Galaxy	1137/HZ Irdeto Mpeg 2
Galaxy	1073/HZ Irdeto Mpeg 2

Optus A3/152E(a)

ATN7png	1297/Vt
ATN7png	1430/Vt

a/occasional use

Palapa C2 Ku (seen South equator)/113E

Test bars	11.148/Vt
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MeaSat 2 148E

Tests	1070Hz*
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* Colour bars, audio 6.8;
C-band covers
Australia, NZ

OPTUS B1 160E (Ku only)

Net 9, Sky feeds	1425/Vt B-Mac
Data	1402/HZ
QSTV	1377/HZ B-Mac
SE ABC HACBSS	1370/Vt B-Mac
SE SBS HACBSS	1344/Vt B-Mac
NE SBS HACBSS	1339/HZ B-Mac
NE ABC HACBSS	1313/HZ B-Mac
Sky Channel	1296/Vt B-Mac
ABC Radio	1276/HZ (digital)
OmniCast	1270/Vt (FM/FM)
ABC feeds	1247/HZ Pal
Sky Nz (sport)	1245/Vt VidCrypt
Sky Nz (Orange)	1218/Vt VidCrypt
Net 10	1182/Vt E-Pal
Net 9	1180/HZ E-Pal
Net 10 feeds	1155/Vt Pal
QTQ9	1145/Vt
Net 7	1120/Vt E-Pal
Net 9 feeds	1091/Vt Pal
Aurora MPEG-2	1076/HZ (tests)
CAA air to ground	1009/Vt Nbfn

PAS-2 169E (C + Ku)

CCTV	1433.5/Vt (Sa9223)
Napa feed	1407/HZ
Value Ch.	1400/Vt
Discovery PowerVu	1374/HZ (Sa9223)
Napa feed	1370/Vt
AB Asia, feeds	1335/Vt
ESPN	1288/Vt B-Mac
WCE-TV, feeds	1250/Vt
MPEG-2 PowerVu Sylmar	1249/HZ (Sa9223)
TNT+ (1/2Tr)	1218/Vt B-Mac
CNN+ (1/2Tr)	1183/HZ
FoxSports	1160/Vt (SA 1.5)
NHK	1115/HZ
Feeds	1092/Vt
Napa feed	1065/Vt
ABS/CBN (5 chs)	1064/HZ (GI 1.5)
NBC Mux MPEG	1057Vt (Philips)
MPEG-2 PowerVu HonKong	1002Vt (Sa9223)
TCS Sing.	967/HZ

PAS-2 Ku

Telstra Bendigo	12.300V (MPEG)
Napa TC	12,415V
Super Ch Taiwan	12,485H (GI)
HiLife	12,582H
MTV Asia	12.605V (MPEG)

Intelsat 801 174E

Feeds	963R
Feeds	984R

Intelsat 702 177E

Feeds	963R
AFRTS	973L (PowVu)
Feeds	984R
Space TV Sys	12.612H (MPEG)

Intelsat 513 177W

Feeds	963
Feeds	984

(513 Ku)

Service	RF Freq.
US Nets	10.980V
NBC	11.015V
Feeds	10.510V

Ku Services

Intelsat Ku band
services shown here
are boresighted to
Japan and nearby
Asia, have not been
reported south of
equator.

TDRS5 / 174.3W

Fuji TV	1305 Hz
BBC World	1163Hz MPEG

Intelsat 701 180E(W)

TVNZ	964/Dmv 3000
TVNZ	972/Dmv
TVNZ	980/Dmv
TVNZ	988/Dmv
ABC/ CBS	1010/ Vidiplex
Occ Vid.	1,020**
SCPC	1,032
SCPC	1,054 **
RFO Tahiti	1,105
SCPC	1,126
SCPC	1,136
World- net	1,175
Feeds	1,216
Feeds	1,254
NHK(e), NBC	1,270
SCPC	1,326
10 Oz MCPC	1,385 (PwRvu)
CNN USA	1,430
Baccar.	1,439 **

* RHC & LHC
** LHC only
e/ encryption

(701 Ku)

NHK	11.135H
CBS	11.475H
CNN	11.508H

UPCOMING SATELLITE LAUNCHES

ApStar 2R (to 121E, 76.5E)/ October launch
IndoStar 1/Cakrawarta to 106E (S-band) Oct 10
InSat 2E to 83.5E/ November/December
AsiaSat 3 to 105.5E November/December

(a) B-MAC encrypted, no access available; (c) MPEG,
encrypted, access may be possible (d) B-MAC,
subscriptions available in some geographic areas.

SatFACTS Pacific/Asian MPEG-2 Digital Watch: 15 September 1997

Bird	Service	RF/IF & polarity	# Prog channels	FEC	Msym
I704/66E	CFI	4055/1095 RHC	4	3/4	27(.500)
PAS-4/68.8E	Walt Disney	3982/1168 Hz	2	3/4	6(.620)
	ART, RAI	3970/1180 Hz	2	3/4	5(.632)
	BBC World	3994/1156 Hz	1	3/4	6(.620)
	ISkyB	12.164 Vt(1)	20+ TV	1/2	20(.000)
Thaicom 78.5E	UTV	3920/1230 Hz	6TV (#1)	3/4	27(.500)
	UTV/MCOT	3880/1270 Hz	6TV (#2)	3/4	27(.500)
Measat 1/91.5	India Bouquet	12284/12346Vt	10+TV?	7/8	30(.000)
As2/100.5E	European Bouquet	4000/1150 Hz	6TV, 12 radio (#3)	3/4	28(.125)
	Hubei TV (HBTB Main)	3854/1296 Hz	2	3/4	4(.418)
	Hunan TV (SRTC)	3847/1303 Hz	1	3/4	4(.418)
	Guandong TV (GDTV)	3840/1310 Hz	1	3/4	4(.418)
	Inner Mongolia TV Zizhiqu	3828/1322 Hz	2	3/4	8(.397) (1-China) (2-Mongolia)
	APT V London	3800/1350 Hz	1	3/4	5(.631)
	BBC Radio	3793/1357 Hz	?	?	?
(This service REALLY does exist!)	WTN Jerusalem/ London	3790/1360 Hz	1	3/4	5(.631)
	WTN London	3786/1364 Hz	1	3/4	5(.631)
	WTN HK	3775/1375 Hz	1	3/4	5(.631)
	Star Bird Athen	3760/1390 Hz	1	3/4	10(.000)
	Liaoning TV (Service 2)	3734/1416 Hz	1	3/4	4(.418)
	Jiangxi TV (JX Sat TV)	3727/1423 Hz	1	3/4	4(.418)
	Fujian TV (SETV)	3720/1430 Hz	1	3/4	4(.418)
	Quinghai TV Zengzhou	3713/1437 Hz	1	3/4	4(.418)
	Henan TV Main	3706/1444 Hz	1	3/4	4(.418)
As2/100.5E	Sky Racing	4015/1135Vt	3TV	1/2	18(.000)
	Hallmark	3940/1210Vt	1TV	2/3	26(.650)
	STAR TV (Hong Kong)	3900/1250 Vt	5TV (#4)	3/4	28(.100)
	"QQQ" China (Shaanxi)	3813/1337 Vt	1, 1 Radio	3/4	4(.418)
	Guangxi GXTV	3806/1345 Vt	1, 1 Radio	3/4	4(.418)
	Rebar TV Taiwan	3785/1365 Vt	5TV (#5)	3/4	18(.000)

Interoperable Receivers (a)
N163/17X/2X, HS-100C
Pv9223 (CA)
DVS211 (probably FTA now)
HS-100C, Philips, probably others (some chs now CA)
HS-100C, Philips, probably others (some chs now CA)
Philips
DMV, HS-100C, Gng, N163, /17X/2X, N2000, P400(b), P500, Pn520/630, Sk888
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
DMV, HS-100C, N163 /17X/2X
(Receiver format unknown)
DMV, HS-100C, N163/17X/ 2X
DMV, HS-100C, N163/17X/ 2X
DMV, HS-100C, N163/173/2X
N2X
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
Pace DVS-211 (CA)
HS-100C, N2X (tests, erratic)
Pace DVS211(CA), DMV, N163*/17X+/2X
HS-100C, N163/17X/2X, N2000, Ph3950/11
HS-100C, N163/17X/2X, N2000, Ph3950/11
Pv9223 (CA) [Video inverted?]

Bird	Service	RF/IF & Polarity	# Prog. channels	FEC	Msym
(As2/100.5E)	Myawady TV	3766/1384Vt	1TV	7/8	5(.080)
	STAR TV HK	3740/1410 Vt	8(+) TV	3/4	28(.100)
	STAR TV Hong Kong	3700/1450 Vt	8TV (#6)	3/4	28(.100)
C2/113E	Star Indovision	3500/1650Hz 3580/1570Hz	20 TV (#7)	7/8	26(.850)
	MegaTV	3780/1370Vt	5TV (#8)	3/4	27(.500)
	Tiernan-1/PTV	3926/3935Hz	1TV	3/4	4(.880)
AP1/138E	Reuters	3732/1418Vt	1TV, data	3/4	5(.632)
Optus B3 156E	Galaxy	12.438Hz 12.373Hz	20+TV (#9)	3/4	29(.473)
	Optus Vision	12.564Hz 12.626 Hz	16TV, 8 radio (#9A)	3/4	29(.473)
Optus B1 160E	Aurora (MPEG test)	12.377Hz	5+ TV (#10)	2/3	30(.000) [27(.500)]
	ABC Exchange	12.540Hz (.550, .560)	1 each	3/4	6(.980)
PAS-2 169E	Telstra Bendigo	12.300Vt	3TV, 2 radio (#11)	1/2	10(.138)
	MTV Asia	12.605Vt	8TV	1/2	22(.490)
	Hong Kong PowerVu	4148/1002 Vt	8TV (#12)	2/3	24(.430)
	NBC Hong Kong	4093/1057 Vt	7TV (#13)	3/4	29(.473)
	JET Singapore	3962/1188 Vt	2TV (1-Ntsc, 2-Pal)	1/2	13(.740)
	CCTV China PowerVu	3716.5/ 1433.5 Vt	3TV (#14)	3/4	19(.850)
	TCS Singapore	4183/967 Hz	2TV (#15)	1/2	6(.620)
	ITJ-Japan	4.174/976 Hz	1 TV	3/4	5(.632)
	AAR-ART/RAI Int	4153/997 Hz	3TV (#16)	3/4	5(.632)
	PAS-2 feeds	3940/1210 Hz	2TV(NTSC)	2/3	6(.620)
	California PowerVu	3901/1249Hz 12425Vt	8TV (#17)	3/4	30(.800)
	Satcom 1-6	3862/1288Hz	6TV	7/8	19(.465)
	Disney/Aust.	3804/1346Hz	1TV	5/6	21(.093)
	Discovery Singapore	3776/1374 Hz	7TV (#18)	3/4	21(.093)
	UCTV/PAS	3718/1432 Hz	1TV	2/3	6(.620)
I702/177E	AFRTS	4177/973 LHC	8TV, 12 radio & data (#19)	3/4	28(.000)
	SPACE TV Systems	12.612/1312 Hz	13TV, 11 radio (#20)	3/4	26(.694)
I701/180E	TVNZ Gennet (feeds)	4186/964,RHC 4178/972, 4170/980, 4162/988	1 TV typical each	3/4	5(.632)
	Canal Plus	4091/1059LHC	1TV (?)	3/4	34(.368)
	10 Australia	3765/1385RHC	5TV	7/8	29(.900)

Interoperable Receivers (a)
HS-100C (may be off air)
Tests/sometimes Indovision
Pace DVS-211 (CA), N163/17X/2X
Pace DVS-211 (CA)
N2X/DVS-211(CA)
N2X (occasional use)
N163/17X/2X
Gng, P400, P500, Pn520, Pn630, Sk888 (c)
(when testing is over, only IRDs with CAM)
N163/17X/2X, Pv9223
Pv9223, HS-100C, N2X (FTA)
Pv9223, N2X (some Pv CA)
Unknown- Asia beam only
Pv9223, HS-100C(*), N2X* (some FTA)
HS-100C, Gng, N163/17X/2X, P400 (b), P500, Pn520, Pn630, Sk888
Pv9223 (CA)
Pv9223, HS-100C, N163/17X/2X (FTA)
Pv9223, HS-100C N17X/2X (FTA)
(FTA)
Pv9223, N17X/2X, (continues FTA)
Pv9223, N2X (usually FTA)
Pv9223, HS-100C (*) N17X/2X (*), (some FTA)
Pv9223 (CA)
Pv9223 (CA)
Pv9223, HS100C, N2X (occasionally Ch. 2 FTA)
N2X, PV9223 (feeds)
Pv9223 (CA)
Pv9223, HS100C, P2X (some chs now CA only)
DMV, N17X, 2X (not all channels hot at all times)
Sagem ISD 2050 (?) (CA)
Pv9223 (CA)

Receivers: (a) By our definition, a receiver is deemed "fully interoperable" when it will turn on and routinely receive the service in question with no persistent glitches, no special tricks (such as loading software from an external source). Receivers in abbreviated listings are those that have shown these qualities for the transmission service listed. There is a time lag of up to 30 days after introduction of new receivers before sufficient data is accumulated for inclusion here. Nomenclature: **DMV** is DMV/NTL 3000 (a professional model receiver); **HS-100C** is Hyundai HSS-100C, designed for China; **Gng** is Grundig DTR1100 (manufactured by Panasat - see SF#31, p. 15); **N163** is Sweden sourced Nokia 9500 S with version 1.63 software; **N17X** is German/European Nokia "d-box" software modified for C-band use; **N2000** is Nokia sourced IRD created for Chinese SCPC market with AsiaSat 2 and Intelsat manual search software; **N2X** is May/after 1997 version of 9500 S; **Pace DVS-211** is Indovision (+ Sky Racing) CA only receiver also used by Sky on As2; **Ph3950/11** is rack mount Philips DVB IRD created for China SCPC project; **P400** is Pace DGT400; **P500** is Pace DVR500; **Pn520** is first version Panasat (July 1996); **Pn630** is latest version Panasat (February 1997); **Pv9223** is PowerVu by Scientific Atlanta; **Sk888** is Skandia DigiSkan. (b) P400 (DGT400) will only work with EBB (et al) when it has not been over the air enhanced (upgraded); (c) SK888 will not work with conditional access (pay) services.

Bouquets: 1) Thailand UTV: (1) CNN, (2) TTV, (3) ESPN, (4) HBO, (5) Ch. 5, (6) itv; 2) Thailand UTV/MCOT: (1) Ch. 9, (2) Discovery, (3) Ch. 3, (4) TNT, (5) Star Sport, (6) Ch. 7; 3) European Bouquet. (1) Deutsche Welle, (2) MCM, (3) RAI International, (4) RTVE, (5) TV5 Paris, (6) [when operating] Deutsche Welle special programme channel with MediaNet VBI included [lines 10-15, requires DMV M2/Pro/Txt board inserted in 3000 series receiver]; Radio (1) DW#1 (stereo), (2) DW#2 (stereo), (3) DW#3 (stereo), (4) YLE (left) & RCI (right), (5) SRI (l) & WRN (r), (6) REE, (7) DW#1 (stereo), (8) DW#2 (stereo), (9) DW#1 (stereo), (10) NN RA6, (11) NN RA8; 4) STAR TV Hong Kong. (1) Sky News London, (2) Sports Contribution, (3) Channel [V] International, (4) Star Movies Japan [NTSC], (5) Star Plus Japan [NTSC]; 5) Rebar Taiwan. (1) "U1" [movies], (2) "U2" [news], (3) "U3" [sport, cartoons, general entertainment], (4) "Rock TV", (5) Tests [FTA]; 6) STAR TV Hong Kong. (1) Channel 6, (2) ESPN Contributory, (3) Racing Ch., (4) Star Movies SEA, (5) Star Chinese, (6) NBC, (7) CNBC, (8) Sky News, (9) VIVA Cinema; 7) Indovision. (1) HBO Asia, (2) STAR Movies SEA, (3) Film Indonesia, (4) MGM Gold, (5) ESPN Asia, (6) STAR Sport, (8) Channel 'V' International, (9) Channel 'V' Asia, (10) RCTI, (11) STAR +, (12) Discovery, (13) STAR Movies and NBC Asia, (14) Phoenix Chinese, (15) CNN, (16) BBC World, (17) CNBC, (18) Cartoon + TNT, (19) Preview 1, (20) Preview 2; 8) MegaTV. (1) CNNI, (2) Discovery, (3) ESPN Asia, (4) HBO Asia, (5) Cartoon + TNT, (6) MGM Gold, (7) Cinemax (6-7 may not be operating); 9) Galaxy. Presently 20+ programme channels. 9A) Optus Vision tests of 16 programme channels, programming decisions to be finalised; 10) Aurora. (1) SBS NT, (2) SBS NE, (3) SBS, (4) Sky News, (5) ABC WA; 11) Telstra Bendigo. (1) Imparja, (2) ABC, (3) ABC radio, (4) Imparja radio, (5) ABC TV FTA; 12) Hong Kong PowerVu. (1) CTN 1, (2) CTN II, (3) TVBI Hong Kong, other feeds [NTSC], (4) **Ad-hoc 1 PA** [PAL], (5) **Ad-hoc II** [NTSC], (6) **ABN**, (7) CTN II, (8) CTN; (13) NBC Hong Kong. (1) CNBC, (2) CNBC Mandarin A, (3) NBC Asia, (4) colour bars, occasional feeds, (5) CNBC Mandarin B (6) NBC "2" Asia/Taiwan, (7) Colour bars, "future" use; 14) CCTV China. (1) **CCTV4**, (2) **CCTV3** I (3) **CCTV 9**, (4) **CCTV4**, (5) **CCTV5**, (6) **CCTV8**, (7) **CCTV tests**; 15) TCS Singapore. (1) TCS Test, (2) TCS Default (repeats channel 1); 16) SCPC3. (1) ad-hoc use, (2) AAR/ART, (3) RAI International; 17) California PowerVu. (1) **CMT** [NTSC], (2) **CBS feeds**, others including CTV Canada [NTSC], (3) [Greece] Antenna 2 [NTSC], (4) **EWTN** [NTSC] global Catholic radio, ch. 2, (5) **BBC World** [NTSC], (6) **Bloomberg Financial** [NTSC], (7) Golf Channel [NTSC], (8) ESPN [NTSC]; 18) Discovery. (1) Disc. Aust/NZ, (2) **Disc. default**, (3) Disc. Japan, (4) Disc. SE Asia, (5) Disc. Taiwan, (6) Disc. Philippines, (7) Disc. China; 19) AFRTS. (1) News, Sports [ACII, CW, RR, 9.6 kbps, TV], (2) Spectrum [Urban, 64 kbps], (3) AFN Pacific [TV], (4) Channel 1 - Mirror [TV], (5) AFN Korea [contingency, 1.536, TV], (6) The Jim Lambert Test Channel [!!!], (7) EPG, voiceline, (8) EPG, u/i voiceline, (9) AFN Atlantic [Top 40, HR, NPR, TV], (10) AFN Americas [Top 40, TV], (11) AC1, (12) Country, (13) Adult Rock, (14) NPR [US National Public Radio], (15) Urban, (16) Pure Gold, (17) Top 40, (18) Hard Rock (19) Contingency.; 20) SPACE Systems (in loading order). (1) P904[Exxtasy], (2) P200(CA), (3) P201(FTA), (4) P202(FTA), (5) P203(barker), (6) P204(barker), (7) P205 (barker), (8) P206(CA), (9) P207(FTA), (10) P208(barker), (11) P501(audio/data), (12) P502(audio/data), (13) P503(audio/data), (14) P504 (audio/ data), (15) P505(audio/data), (16) P506(audio/data), (17) P507(audio/data), (18) P508(audio/data), (19) P509(audio/data), (20) P510 (audio/ data), (21) P511(audio/data), (22) P3801(CA), (23) P3802(CA), (24) P7777(CA). NOTE: Listings in **bold face** are PowerVu transmissions that are typically (but not always) FTA (free to air). Underlined Space TV Systems are typically FTA.

MPEG-2 DVB RECEIVERS: [Data here is believed accurate; we assume no responsibility for errors in this volatile area!]

DMV/NTL 3000. Skandia Electronics Pty Ltd (tel 61-3-9819-2466)

Grundig (Gng) DTR1100. Av-Comm Pty Ltd (tel 61-2-9949-7417)

Hyundai-TV/Com. Model HSS-100C is officially available from Pacific Satellite (tel 61-7-3344-3883) and Skandia Electronics (tel 61-3-9819-2466); Skandia offering "upgraded 'left', 'right' chips" for existing units, new models factory equipped with upgrade.

Nokia 9500 S (V1.63). This version is no longer available although it had ability to identify Msym and FEC parameters of unknown carriers. (V1.7X) was a German language "d-Box" version originally imported by OPAC; it functioned with the same parameters as the V1.63. (V2.X; 2.233/e3, 2.034 and others perhaps not yet identified) are current (after June/July) software versions that allow virtually unlimited stacking of bouquets and programmers and for at least the 2.233 version also allows limited red menu correction of NTSC glitch (see SF#36, p. 6). Sources known include: AV-COMM Pty Ltd (Tel 61-2-9949-7417); Pacific Satellite (61-7-3344-3883), SCITEQ (61-8-9306-3738); Telsat (64-6-356-2749). AV-COM has macro-command IR remote that expedites 'red menu' operations for e3 version 9500 S. (see SF#36, p. 32).

Nokia "d-box" (V1.7X) suitable for C-band use. Instructions, on-screen prompts may be in German. No longer available.

PACE DVS-211. Officially available only through Sky (racing) Australia (Bob Pankhurst tel 61-2-9451-0888).

PACE DGT400. Through Galaxy offices, Australia.

PACE DVR-500. Bay Satellite TV Ltd. (tel 64-6-843-5296); also supplied by NBC to affiliates.

Panasat 520 (Pn520). OPAC Pty Ltd (tel 61-2-584-1233); no longer available.

Panasat 630 (Pn630). Antares Satellite (61-7-3205-7574)

Panasat 635. A notation - The Panasat 635 will not be released except in South Africa

PowerVu D9223. Scientific-Atlanta (Sydney) Tel 61-2-9452-3388; BaySat (tel 64-6-843-5296), Telsat (64-6-356-2749)

SAGEM ISD2050. SAGEM SA, Mrs. Salima ALAOUI (tel 33-1 40 70 63 63)

Samsung VS-2000 (ver 1.31). Pacific Satellite (tel 61-7-3344-3883)

SK888. Skandia Electronics Pty Ltd. (tel 61-3-9819-2466)

WITH THE OBSERVERS

AT PRESS DEADLINE

MegaTV bouquet (C2, 3780Vt) is reported FTA as we go to press. Intelsat 701 feeds on Ku to Japan - NHK on 11.135Vt. PAS-2, add VCTV 3718 Hz Msym 6620, FEC 3/4. TDRS-5 at 174.3W, BBC World on 3987 H, MPEG (unknown #s); Fuji TV 3845Hz PAL. ApStar 2R launch now scheduled October 7.

The replacement of Intelsat 511 with newer satellite 701 at 180E went off without any major hitches at 1600UTC on September 4th (2AM AEST and 4AM NZT on the 5th). 511 was launched in June 1985 and had a design life of 7 years (1992). Sure enough, late in 1992 the satellite began to lose the ability to stay dead over the equator and slowly in the next five years the inclination (flight path north and south of the equator) has grown to nearly +/- 3 degrees. The changes in satellite design from the 1985 launch of 511 to the October 1993 launch of 701 has been quite dramatic. 511 had a maximum operating power of 8.5 watts on C-band whereas 701 is 30 watts. 511 had 16 C-band transponders of 36 MHz bandwidth, 10 of 72 MHz; 701 has 26 C-band of varying widths from 34, 36, 41, 72 and 77 MHz. On Ku-band, 511 had a maximum output power of 10 watts while 701 is 50 watts. The total power capability of 511 was 1.3 kilowatts when retired; the latest satellites have such massive solar collection arrays that they will create 11 kilowatts of energy. 701 should last until 2004 before it begins an inclined sassafras orbit path.

Most early reporters (Kosmalski, Jepson in New Zealand, Leach in Australia, Kennedy in Fiji) find the 701 signals on average 3 dB hotter than those of 511. With eirps of 26/29 dBw on the global beam, 33 dBw on hemispheric or zone and 36 dBw on spot (see SatFACTS for August, p. 18), in the best case dishes as small as 2m should produce analogue threshold reception. 701 has far more versatile hemispheric and zone beam options than 511 and Intelsat will maximise their

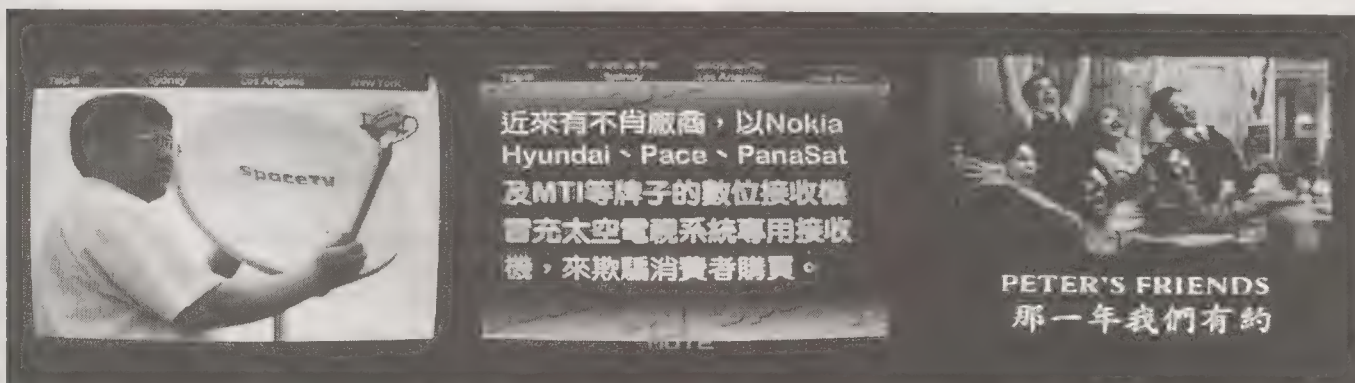
Star TV would like to
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soon as possible.

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announcement broadcast (As2 feeds)

revenue with this satellite by operating it in a new manner from 511. This transition will be gradual, and will result in some signals being totally unavailable at some locations.

For those who have become involved in satellite only in the last 24 months, 180E may be a bit of a mystery. Something only seen here is the Vidiplex or two-for-one system seen on 4140/1010IF R (right hand circular). The American ABC and CBS networks share this transponder but not in the usual 1/2



SPACE TV Systems update from 177E: Promotional channel continues to describe home dish system to FTA viewers (left), "warning" not to purchase non-approved receivers (centre) has added "PanaSat" to list of undesirable receivers (see p. 29, SatFACTS August) while often 'R rated' English language movies sharing a programme channel with TVSN in Mandarin are now on (Nokia e3) 207.

WITH THE OBSERVERS: Reports of new programmers, changes in established programming sources are encouraged from readers throughout the Pacific and Asian regions. Information shared here is an important tool in our ever expanding satellite TV universe. Photos of yourself, your equipment or off-air photos taken from your TV screen are welcomed. TV screen photos: If PAL or SECAM, set camera to f3.5-f5 at 1/15th second with ASA 100 film; for NTSC, change shutter speed to 1/30th. Use no flash, set camera on tripod or hold steady. Alternately submit any VHS speed, format reception directly to SatFACTS and we will photograph for you. Deadline for October 15th issue: October 3 by mail (use form appearing page 34), or 5PM NZST October 4th if by fax to 64-9-406-1083.

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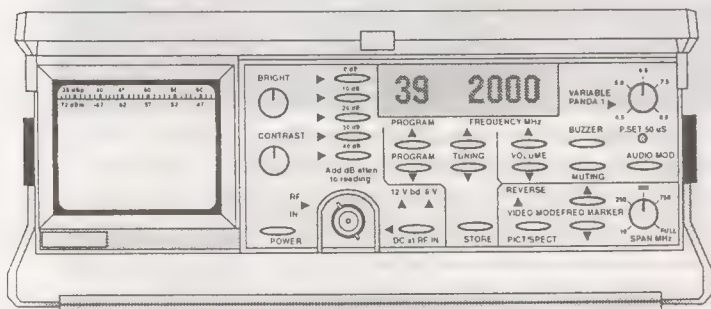
SATELLITE INSTALLATIONS

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The difference between excellent satellite TV reception and poor signal quality often boils down to one thing: the installation. A correct installation performed by a professional installer can pull out that last fraction of a decibel in signal strength, making the difference between problematic TV reception and a perfect TV picture. Few technicians, however, have gained a thorough knowledge of this subject and related information resources have heretofore been limited in scope and not up to date with the latest technology.

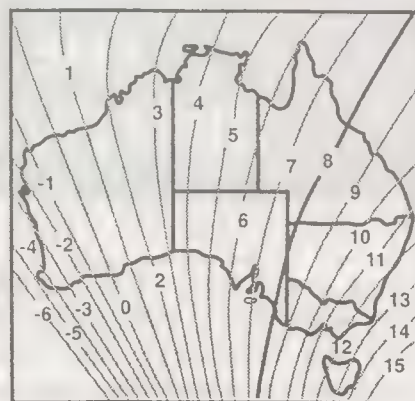
Released in August of 1997, the latest in the line of successful *Satellite Series* videotapes from MLE/Shelburne Films is a one-hour graphic intensive videotape written and presented by Mark Long, author of *The World of Satellite TV* and founding publisher of *The World Satellite Almanac*. **Satellite Installations**—which covers the technical details which every satellite professional needs to know, including basic digital DTH system parameters and installation tips—is part of a new *Satellite Installer Certification Course* expressly designed for members of the **SPACE Pacific** trade association.

Satellite Installations covers the basics, such as site surveys, cable connections, antenna alignment procedures, and component selection, as well as more esoteric topics such as system noise performance, link budgets, dual-band systems, and digital IRDs, as well as how satellite installers can gain maximum benefit



An installer's tutorial on portable spectrum analysers is included in this latest one-hour VHS videotape from MLE/Shelburne Films

The magnetic correction factor for Sites in Australia



Satellite Installations covers the brave new world of tiny Digital DTH dishes as well as the installation of larger C-band antennas.

Satellite Installations Videotape Contents Summary

Finding the Satellite Arc

Azimuth & Elevation Coordinates

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Dual-Band Installations

Small Dish (Offset-fed) Installations

Satellite Receivers & IRDs, Analogue & Digital

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SPACE Pacific

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Fax: 649-406-1083

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Services Observed on 701 at 180E

RF freq	IF freq	Service	RF freq	IF freq	Service
3720R	1,430	CNN USA (feeds)	4014R	1,136	SCPC
3741L	1,409	Baccarat	4024R	1,126	SCPC
3756R	1,385	10 Net (MCPC)	4096L	1,054	SCPC
3794R	1,356	SCPC	4118R	1,032	SCPC
3880R	1,270	NHK encrypt	4130L	1,020	Feeds
3896R	1,254	News feeds	4140R	1,010	ABC & CBS Vidiplex
3934R	1,216	News, sport feeds	4162R	988	TVNZ SCPC
3975R	1,175	World- Net (a)	4170R	980	TVNZ SCPC
4047R	1,103	RFO Tahiti	4178R	972	TVNZ SCPC
			4186R	964	TVNZ SCPC

a/ Only to November 1; shaded LHC, rest RHC

transponder format. Rather, each service has 1/2 of the video lines available and when viewed you have two pictures where normally there is one. A "Vidiplex decoder" was widely available five years ago that produces watchable (if not broadcast quality) separate images for either CBS or ABC at the throw of a switch. The audios are on five separate subcarriers (ABC at 6.14, 6.32, CBS at 5.75, 5.94 and 6.66).

Other Reports

RAJ-TV has left 142.5 and is now on Thaicom 3, 3640V.

Agila 1 is now at 144E and should be testing using 3580-4140 C-band and 12.220-12.660 on Ku-band. Anyone seen it yet?

Observers in NSW and South Australia report at-horizon (under 5 degree look angle) reception from selected PAS-4 transponders, in particular TNT/Cartoons (4110Hz), Sony Entertainment TV (3910Hz). Can we have more observers within range of PAS-4 checking this out please? Photos of reception (and your dish look angle view) appreciated!

AsiaSat 4: In case you missed it up front, AsiaSat (the corporation) claims they will move a "second hand satellite" to 122E to hold that spot until AsiaSat 4 is launched in 1999. Two possibilities here: Best is that AsiaSat 1, to be replaced at 105.5E by AsiaSat 3, will then move to 122E to hold down the fort. There is a great deal of coveting of neighbouring parking spots going on in the 118-128E region.

Not to be overlooked: With Intelsat 802 now operating from 174E (where 701 was previously), observers report occasional feeds on 4166R and 4188R are now "several dB stronger" than they were on 701. Check it out.

JcSat-3 (128E) is reported testing on 4080/1070Vt, audio 6.2 and 6.8, by Kevin Green at Manilla, NSW. We also suggest you check out the 130E position for renew signs of life.

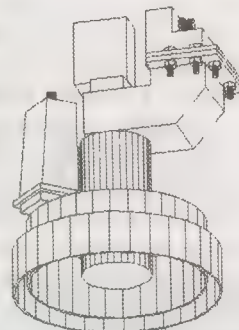
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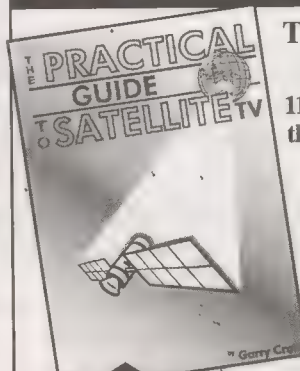
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Sign-off

The Downside of MediaNet VBI Delivery

Our notation that the much reported German MediaNet appears to have fallen into difficult times (this column, August SatFACTS) has drawn a response from one of the principals in Net On Air (Asia Pacific) Pty Ltd. Peter Fischer, a Director, advises:

"Actually, we paid US\$300,000 for the exclusive rights to market MediaNet not only in the Pacific and Asia, but the United States as well." We had said A\$125,000 which seemed to us like a sizeable chunk to pay just for rights. There are significant concerns we have about where Net On Air is going and we told Fischer what they were.

First, the only way a user can tap into the present Deutsche Welle transmitted data stream is to add a US\$1,000 card to his A\$3,800 DMV/NTL/NDS 3000 receiver. Then the user has to have his receiver authorised (addressed) through Net On Air. Fischer on this problem:

"We have gone to Nokia to ask them to build a version of the 9500S which will receive and process the Net on Air Internet digital data stream. They can do this for us but they want us to pay for not only their R and D but also to guarantee them a significant volume of receivers at the outset. We do not think this is a good business plan."

Fair enough, but if there is *not* a reasonably priced IRD available that will access the Net On Air service, the only alternate is US\$1,000 for a card and A\$3,800 for a commercial IRD. For 99.9% of the would be users of Net On Air, that's no option.

The basic problem here is that when a television programme is transmitted, Net On Air buries (hides) the Internet data stream inside of the vertical blanking interval (VBI) of the transmission. Unfortunately, when MPEG-2 was created, there was no VBI equivalent allocated. You cannot get from Internet to a home IRD by using the VBI if there is no VBI present. Deutsche Welle solves this by transmitting Net On Air within a uniquely allocated data stream segment. It is VBI without VBI. And it is the NTL/DMV/NDS US\$1,000 card fitted to the A\$3,800 receiver that locates and extracts this portion of the data stream to feed to a PC. Designing this function into a consumer level IRD is a business challenge, not an engineering test. Prototypes have been built and shown in Germany.

Now, if Deutsche Welle was transmitting in analogue rather than digital, a VBI would automatically be available to deliver Net On Air Internet world-wide. Which is another way of saying that if the MPEG delivered Net On Air data stream can be received in Australia, and put back up on satellite within some other analogue VBI, then there are a number of reasonably priced analogue decoders that could work with this service. In fact, Fischer's group offers such a decoder unit for A\$198.

Discussions are underway with TVSN (the Australian based shopping channel) to use their analogue VBI. That would spray Net On Air throughout Asia and the Pacific on PAS-2 and AsiaSat 2. The German originated Net On Air would be taken down in Australia from the Deutsche Welle digital feed and be inserted into the TVSN VBI. Now any analogue receiver tuned to TVSN and equipped with the Net On Air A\$198 decoder could become a subscriber.

Problems? There are some. Fischer tells SF that TVSN is demanding that they become the *exclusive* source for the decoders. That is understandable - if they *donate* their VBI to the system, one way for TVSN to be compensated is to allow them to become the master distributor for the decoder boxes. However, Fischer and fellow Director Barry Taylor are fearful of giving TVSN (or anyone else) "exclusive" distribution rights for the decoders; rather, they would prefer that TVSN offer it for sale (like anyone else) and be paid a per subscriber royalty for each user of the service on their VBI. Rates of \$2 to \$3 per month per subscriber, paid to the broadcaster providing the VBI, are common in North America and Europe.

Lacking an analogue signal (whether via satellite or terrestrial) with a VBI that includes the Net On Air Internet data stream, the German MediaNet project is not going anywhere very fast. A cable company, through Fischer and group, can be licensed to take the Deutsche Welle feed, convert it to analogue and send it down the cable TV lines to homes equipped with the A\$198 decoder. However, this begins with the A\$3,800 NTL family receiver, modified with the US\$1,000 data extraction board and then goes on to include a VBI insertion system for one of the cable firm's analogue TV signals. This, Fischer tells us, is priced in the range of US\$6,000. A TV station in Fiji, Vanuatu, or New Caledonia could do the same thing for the same price.

None of this is cost effective unless there are thousands of potential users of the MediaNet version of Internet. The take up rate is unmeasured but if it exceeded 5% of all homes reached in the first year, that would be quite outstanding response. Like so many wonderful creations of the technical wizards, this one seems to have been created with the best of intentions and then slowly the cost of implementing it soared out of financial reach. For example, Fischer says that in addition to paying the Germans US\$300,000 for the "exclusive rights" to the system, they are contract bound to pay the German developers 30% of every subscription dollar they take in. Further, they say the Germans insisted in their contract that the *minimum* monthly fee would be US\$15 for the service.

What has happened here is at best sad. The MediaNet project was greeted with open arms and positive response when first unveiled (with technical difficulties) during SPRSCS '97 last January. It attracted a considerable amount of trade press including massive coverage in consumer computer user magazines in both New Zealand and Australia.

If the project is to be salvaged at this date, a fresh, new approach, to what it does and how much it costs must be invented. Moreover, it is imperative that somehow the service gets up on a wide coverage analogue VBI equipped transponder so that potential customers can be reached. Finally, the German's who created this system must be more flexible in setting rules for its resale. Real world Internet access is less costly each month. MediaNet needs to adjust to the realities of the marketplace.

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SUPPLEMENTAL MATERIALS from SatFACTS MONTHLY: Order Form

- ☐ **SATELLITE TELEVISION:** The Booklet. Excellent introduction to home dish ownership for the layman, including major contributions from the father of geostationary satellites - famed science fiction writer *Arthur C. Clarke*. The perfect tool to help the satellite system seller explain home satellite TV to the layman consumer. From SPACE Pacific. NZ\$10 / A\$12 / US\$10, airmail.
- ☐ **COOP'S TECHNOLOGY DIGEST.** For the really serious enthusiast, investor, business person in satellite television and allied leading edge technologies. Ten issues each year, jam-packed with information you will not find anyplace else. "Coop" routinely culls more than 60 publications world-wide, terribly expensive newsletters, Internet and his hundreds of private contacts to keep you right at the leading edge of technology on the **REAL** changes underway in telecommunications. Conveniently issued near the **first of the month**, creating an excellent time-line-filler between the mid-month issues of SatFACTS. Now in the 5th year, airmail world-wide. Normally NZ/A/US\$250 per year - for SatFACTS subscribers special **50% discounted** price of NZ/A/US\$125.

OBSERVER REPORTING FORM - CONTEST ENTRY - Due Oct 5

- NEW programming sources seen since Sept 1st: _____
- Changes (signal level, transponder, programming content) in pre-existing programming sources since Sept 1st: _____
- OTHER (including changes in your receiving system): _____

NOTE: Please use P1 - P5 code when describing signal levels and receiver IF/RF settings.

REMINDER: 1701 OBSERVATIONS FROM 180E ARE IMPORTANT THIS MONTH!

Your Name _____ Is this contest entry? _____
Town/City _____
Make/size dish _____ LNB _____
Receiver _____

August BONUS WORD - Asparagus p.33 -

MAIL TO: SatFACTS Monthly, PO Box 330, Mangonui, Far North, NZ or fax 64-9-406-1083

YOU COULD WIN A DYNASAT 300P or PALCOM SL7900RP!

SatFACTS is giving away two (2!) top of the line super receivers - the PALCOM SL7900RP and the DYNASAT 300P - to subscribers between now and February! This is a MONTHLY CONTEST and you must REGISTER with us as a contest entrant. Complete this card to receive the full set of Contest Rules and join the fun. A DYNASAT 300P could well be yours (next receiver to be given away October 5!).

☐ I AM A SUBSCRIBER TO SATFACTS - Please mail to me my SatFACTS Reader Contest Rules!

NAME _____
Company (if applicable) _____
Mailing address _____
Town/City _____

Return card to: **SatFACTS Monthly**, PO Box 330, Mangonui, Far North, New Zealand
of fax to us at 64-9-406-1083

MEMBERSHIP IN SPACE?

Choose your level of participation from "Individual" or "Installer / Dealer" to "Cable/SMATV Operator" or "Importer/Manufacturer/ Programmer."

☒ YES - Send details of SPACE membership, to ...

NAME _____

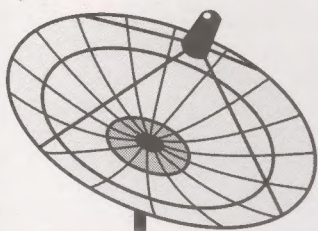
Company (if applicable) _____

Mailing address _____

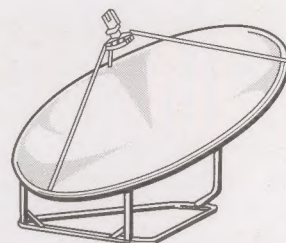
Town/city _____



SPACE Pacific Ltd.
PO Box 30, Mangonui, Far North
New Zealand
Fax 64-9-406-1083



AV-COMM SATELLITE TV EQUIPMENT

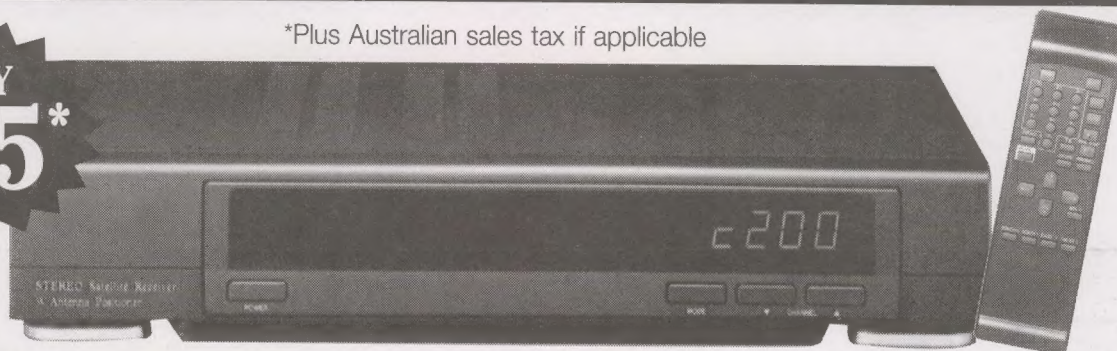


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ONLY
\$775*

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- DUAL INPUTS • • • • ➤ ALLOWS DUAL DISH/BAND OPERATION
- SCART & RCA OUTPUTS • • • ➤ MAXIMUM INTERCONNECTION FLEXIBILITY
- DUAL BANDWIDTHS • • ➤ SUITABLE FOR HALF TRANSPONDER OPERATION
- FREQUENCY SCAN • • • • ➤ SEARCH FOR UNKNOWN FREQUENCIES
- 14/18V SWITCHING • • • • ➤ USE DUAL POLARITY OR WIDEBAND LNB
- 20 STEP THRESHOLD EXT • • • • ➤ PRESET THE EXACT THRESHOLD FOR EACH CHANNEL

**We reserve the right to improve product performance without notice.*

BENEFITS

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PO BOX 225, BALGOWLAH 2093

TEL: 61 2 9949 7417 9948 2667

FAX: 61 2 9949 7095

VISIT OUR WEB SITE AT
<http://www.avcomm.com.au>

✓YES GARRY, Please send me more info...

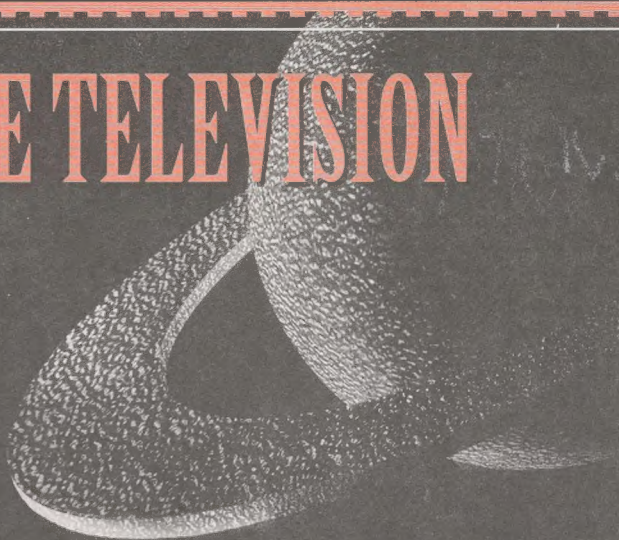
Name: _____

Address: _____

_____ P'code: _____

Phone: _____

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